
CENTER FOR DIGITAL DEMOCRACY

Big Data is Watching: Growing Digital Data Surveillance of Consumers by ISPs and Other Leading Video Providers Center for Digital Democracy

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“Reach more than 130 million US customer connections via TV, Internet, and mobile. Billions of cross-screen advertising impressions, including TV Everywhere, online and mobile. ... The industry’s foremost targeting platform.”
“More Scale, More Targeted, More Screens.”
—AT&T AdWorks¹

The privacy of Americans faces growing new threats and challenges as phone and cable Internet service providers (ISPs) along with leading Internet companies expand their ability to capture our information.² As consumers have grown to rely on many screens to view digital content, Verizon, Comcast, Google, AT&T, Time Warner, and others have incorporated powerful layers of data collection and digital marketing technologies to better target individuals.³ A vast storehouse of consumer data is now being added to the trove of “advanced,” “addressable” and online information already gathered by cable and

¹ AT&T Adworks, <http://adworks.att.com/>. “Many cable, satellite, and telco TV service providers, along with broadcast and cable networks, now let you watch movies, TV shows, sports, and more on mobile devices. It’s all part of an initiative called “TV Everywhere.” “TV Junkies Rejoice—You Can Now Watch Shows and Movies Just About Everywhere, *Consumer Reports*, May 2012, <http://www.consumerreports.org/cro/2012/05/tv-junkies-rejoice-you-can-now-watch-shows-and-movies-just-about-everywhere/index.htm?loginMethod=auto>.

² See especially the work of digital marketing trade organizations. For example, IAB, “Standards, Guidelines & Best Practices,” <http://www.iab.com/guidelines/?topic=digital-video/>; IAB, “News: Programmatic,” <http://www.iab.com/news/?topic=programmatic/>; Gabbcon, “Gabbcon ABCD’s of Audience Buying,” <http://gabbcon.com/abcds-of-audience-buying/>.

³ The ability to gather and integrate diverse sets of data on individuals has helped give rise to what is called “people-based” targeting. See, for example, Merkle, “MerkleONE: Get People-Based with One Solution,” <http://www.merkleinc.com/merkleone>; Esther Burgeson, “People-Based Targeting,” TruSignal Audience Matters Blog, 21 Jan. 2016, <http://www.tru-signal.com/category/articles/people-based-targeting/>; LiveRail, “People-Based Targeting,” <https://www.liverail.com/technology/people-based-targeting/>; Rocket Fuel, “Rocket Fuel’s People-Based Marketing Standard,” Rocket Fuel Blog, 19 Nov. 2015, <http://rocketfuel.com/people-based-marketing-standard/>.

telephone ISPs.⁴ ISPs have made partnerships with powerful data brokers, giving them insights into our online and offline behaviors. They are incorporating state-of-the-art “Big Data” practices—such as “programmatic advertising”—that significantly threaten the privacy of subscribers and consumers.⁵ Incorporating elements of what is known as “behavioral” targeting, programmatic advertising is fueled by powerful alliances among data, media, advertising, and technology companies, and encompasses nearly all the devices and formats we rely on—including mobile, audio, and video. Superfast computers analyze our information, using algorithms and other predictive decision-making to decide in milliseconds whether to target us for marketing and more. Through digital dossiers that merge all of this information, we can be bought and sold in an instant—to financial marketers, fast-food companies, and health advertisers, for example—all without our knowledge.⁶ The stealth data-profiling apparatus that determines whether a person is bought, sold, or ignored, and used to target family, friends and others, requires the Federal Communications Commission to address the use and consequences of practices that threaten privacy and pose consumer-protection concerns.⁷

⁴ See, for example, Cisco, “Cisco Videoscape Advertising Management,” <http://www.cisco.com/c/en/us/products/video/videoscape-advertising-management/index.html>; SeaChange, “Infusion,” <http://www.schange.com/solutions-products/products/infusion>; Jeanine Poggi, “AT&T Plans 100 Upfront Events to Pitch Addressable TV Advertising,” *Ad Age*, 17 Mar. 2016, <http://adage.com/article/special-report/att-takes-tv-upfronts-pitch-addressable-advertising/303155/>; Coalition for Innovative Media Measurement, “Big Data: Data Enrichment Quality,” <http://cimm-us.org/initiatives-2/return-path-data/>; DataXu, “The Rapid Rise Of Programmatic Television,” <https://info.dataxu.com/Rise-of-Programmatic-Television-2016>; “AudienceXpress and Neustar Announce Data Partnership to Bridge Gap Between Online and TV Ad Campaigns,” 14 Mar. 2014, <http://www.marketwired.com/press-release/audiencexpress-neustar-announce-data-partnership-bridge-gap-between-online-tv-ad-campaigns-nyse-nsr-1888850.htm>.

⁵ As discussed later, Google plays a key role developing the overall framework for the use of data and programmatic advertising. For example, “Programmatic’s promise,” Google explains, “—data-driven targeting, automated workflows, cross-screen campaigns, and real-time optimization—will help advertisers get more value from TV advertising.” Rany Ng and Anish Kattukaran, “The Evolution of TV: The Promise of Programmatic TV,” Think with Google, Mar. 2015, p. 8, <https://think.storage.googleapis.com/docs/evolution-of-tv-programmatic-tv.pdf>.

⁶ The industry literature on programmatic advertising is very robust. See, for example, IAB, “Programmatic and RTB,” <http://www.iab.com/guidelines/programmatic-rtb/>; TapSense, “Ad Buyers Guide to Mobile Programmatic,” <http://www.tapsense.com/blog/post/ad-buyers-guide-mobile-programmatic>; eMarketer, “Programmatic Video—The Dramatic Rise of Connected TV, Apps and Ad Spending,” <http://www.emarketer.com/Webinar/Programmatic-VideomdashThe-Dramatic-Rise-of-Connected-TV-Apps-Ad-Spending/4000111>. See also, generally, Ad Exchanger, <http://adexchanger.com/>; Exchange Wire, <https://www.exchangewire.com/>.

⁷ See “look-alike” modeling, which illustrates how current consumer data-profiling practices undermine the privacy of millions of others. LiveRamp, “So You Think You’re a Data-driven Marketer: Explaining 50+ Terms You Should Know,” <http://lp.liveramp.com/glossary>. Note also the issue of “waste.” RadiumOne, “Programmatic Ad Platform Solutions,” <https://radiumone.com/products/advertiser/programmatic/>.

Phone and cable ISPs are an especially significant and growing threat to our privacy because—as the key providers of our Internet and device connections—they have in-depth access to information about what we do online.⁸ ISPs can tie together, for example, a person’s mobile phone with set-top box use, helping them understand how the consumer is behaving online in various locations, and then use this information for home-based video targeting.⁹ ISPs, along with data brokers, ad giants, and other leading digital marketing companies, have embraced “cross-device” targeting techniques. This includes how, when, and what we do when we view video and other content—whether delivered on our mobile phones, personal computers, or streamed or hard-wired to our TVs.¹⁰ The ability of an ISP and others to identify and target us regardless of what digital device we use has effectively erased any privacy safeguards we may have enjoyed previously when

⁸ For a review of ISPs’ ability to gather information on their subscribers and customers, see, for example, Open Technology Institute, “The FCC’s Role in Protecting Online Privacy: An Explainer,” New America Foundation, 21 Jan. 2016, <https://www.newamerica.org/oti/the-fccs-role-in-protecting-online-privacy/>; “‘Protecting Privacy, Promoting Competition’ White Paper,” 16 Feb. 2016, <https://www.publicknowledge.org/documents/protecting-privacy-promoting-competition-white-paper>; Center for Democracy and Technology, “Applying Communications Act Consumer Privacy Protections to Broadband Providers,” 20 Jan. 2016, <https://cdt.org/insight/applying-communications-act-consumer-privacy-protections-to-broadband-providers/>; Upturn, “What ISPs Can See: Clarifying the Technical Landscape of the Broadband Privacy Debate,” Mar. 2016, <https://www.teamupturn.com/reports/2016/what-isps-can-see>.

⁹ “Geo-based addressable data driven TV,” according to the AAAA, “can offer great efficiencies in delivery by using MVPD subscriber data to identify income, ethnicity, pet ownership and even purchasing behavior within specific geographies on the households or cable zones level that over-index against the desired target.” AAAA, “Data Driven Video: What Will It Mean to the Future of Video,” 2015, http://www.aaaa.org/agency/media/Documents/4As-DataDrivenVideo_031315_r1af.pdf. Geo-location or “hyper-local” targeting, much of which is made possible through our use of mobile devices and technologies such as “Beacons,” now provide an abundance of specific locational and geographic-history information on specific consumers, and used to target them—at that location and through cross-device techniques. For background on this technology, see: Placed, “How It Works,” <https://www.placed.com/how-it-works>; Mediative, Solutions: Location-based Marketing,” <http://www.mediative.com/solutions/location-based-marketing/>; “IAB Releases First Mobile Location Data Guide for Publishers,” 19 Feb. 2016, <http://www.iab.com/news/iab-releases-first-mobile-location-data-guide-for-publishers/>.

¹⁰ TV ad-targeting data also can include panel-based data (“Household browsing behaviors as recorded by sampling an audience group”), registration data (“Self reported opt-in data provided by users during registration process, such as subscription to connected TV apps), purchase behaviors (“Offline purchase behavior as matched up to the households through past purchases, subscriptions, coupons and loyalty programs”), digital tune ins (“Data provided by user approved digital listening applications as users tune into TV programming”), and social behavior (“User social behavior data as it relates to conversations, discussions and interests around TV programming”). Alex Andreyev, “Programmatic TV: From Linear to Digital,” Feb. 2015, p. 9, https://www.neoogilvy.com/wp-content/uploads/2015/02/Viewpoints_Programmatic-TV_February-2015.pdf.

we switched between devices.¹¹ As we address in this report, these practices are also being embraced by leading cable programmers, broadcast networks, streaming video, and other digital marketing companies.¹² While there is now greater availability of video content across screens, it should not be at the expense of consumer privacy.¹³

Among the advances in data collection, analysis, and ad-targeting capabilities of ISPs are the following:

- “Data is at the heart” of AdWorks, the Big Data-enabled ad division of AT&T that claims to have “the industry’s foremost targeting platform.” The AdWorks system enables marketers to “reach your audience everywhere they watch on every screen,” spanning “130 million US customer connections across TV, Internet and mobile.”¹⁴ Moving beyond what it says is the “largest TV subscriber base, with over 26 million households nationwide,” AT&T is expanding its ability to use data to reach consumers across devices, including video content “accessed on smartphones, tablets, desktop computers and connected devices.”¹⁵ Its data-targeting system involves the use of its “100% IPTV” platform, which enables

¹¹ See, for example, Allison Schiff, “A Marketer’s Guide To Cross-Device Identity,” Ad Exchanger, 9 Apr. 2015, <http://adexchanger.com/data-exchanges/a-marketers-guide-to-cross-device-identity/>; Drawbridge, “We’re Building the People Tech that Maps the Cross-Device World,” <http://drawbridge.com/technology>; Kelly Liyakasa, “Qualia Merges With BlueCava To Connect Intent To Cross-Screen Conversion,” Ad Exchanger, 20 Jan. 2016, <http://adexchanger.com/mobile/qualia-merges-bluecava-connect-intent-cross-screen-conversion/>; Tapad, “Download Tapad’s Cross-Device Data Book of Terminology Today,” 9 Feb. 2016, <http://www.tapad.com/download-tapads-cross-device-databook-of-terminology-today/>.

¹² See, for example, discussions below on the Turner Data Cloud, NBCUniversal’s Audience Targeting Platform, and Cablevision’s TAPP. See also Kelly Liyakasa, “A Programmatic TV Standard Takes Shape,” Ad Exchanger, 9 July 2015, <http://adexchanger.com/tv-and-video/a-programmatic-tv-standard-takes-shape/>. “... [T]he targeting and measurement potential of OTT goes way beyond that of network television. OTT devices can also collect data on things like app usage, purchase and downloads, all of which can dramatically increase targeting precision. So rather than reaching families in the Chicago area, for example, it’s possible to leverage demographic, behavioral and purchase data to target on an individual level.” Michael Kohn, “Standards Needed To Make OTT Work For Advertisers,” AdExchanger, 10 Aug. 2015, <http://adexchanger.com/tv-and-video/standards-needed-to-make-ott-work-for-advertisers/>.

¹³ SpotXchange, “A Programmatic TV Guide for Sellers,” 2015, p. 1, http://www.spotxchange.com/wp-content/uploads/2015/02/SpotXchange_AProgrammaticTVGuideForSellers_WhitePaper.pdf.

¹⁴ AT&T AdWorks, “Cross-screen,” <http://directvadsales.com/crossscreen.html?lpos=Header:2>; <https://datajobs.com/AT-T/AdWorks-Hadoop-Engineer-Job~2889>; <http://www.theladders.com/ATT-AdWorks-Director-IPTV-Adv-Bus-Dev-Advertising-Solutions-New-York-NY|NY|3415297?x=q>

¹⁵ AT&T AdWorks, “TV Everywhere,” <http://directvadsales.com/crossscreen.html?lpos=Header:2>; AT&T AdWorks, “The Leader in Addressable TV Advertising,” <http://adworks.att.com/?lpos=Header:1>.

significant data collection and audience-targeting capabilities for advertising.¹⁶ AT&T AdWorks has also developed a “cross-screen system to match users’ mobile, online and television devices together based on identifiers and systems” that the company has “access to.” It operates a “consumer insights platform” that uses “Big-Data” techniques to advance AT&T’s targeted-marketing objectives.¹⁷

- Comcast is able to harvest “terabytes of unstructured data” from the set-top boxes it controls, including homes that have them in “multiple rooms.” These data are then “enriched by demographics” using an array of Big-Data processing so they can be “more meaningful to advertisers,” including those targeting via “Comcast’s IP-based systems.”¹⁸ Comcast is using Rubicon’s Advertising Automation Cloud, “one of the largest cloud and Big Data computing systems in the world, [which] leverages over 50,000 algorithms and analyzes billions of data points in real time” to buy and sell individuals to marketers.¹⁹

¹⁶ “AT&T AdWorks Director IPTV Adv Bus Dev, Advertising ...,” TheLadders, [http://www.theladders.com/ATT-AdWorks-Director-IPTV-Adv-Bus-Dev-Advertising-Solutions-New-York-NY\[NY\]3415297?x=q](http://www.theladders.com/ATT-AdWorks-Director-IPTV-Adv-Bus-Dev-Advertising-Solutions-New-York-NY[NY]3415297?x=q); <http://www.cisco.com/c/en/us/solutions/collateral/service-provider/iptv->

¹⁷ AT&T AdWorks, “Research,” <http://adworks.att.com/research.html>; AT&T AdWorks, <http://directvadsales.com/>; Hassan Ali, “AT&T, in Partnership with Videology, Plans to Sell Linear TV Advertisements Using Programmatic Application,” Bidness Etc, 4 Mar 2016, <http://www.bidnesstec.com/64918-att-inc-latest-plans-to-boost-advertising-revenue/>; Daisy Whitney, “AT&T Advanced Ad Division Zeroes in on ROI, TV Addressability,” Beet.TV, 3 Feb. 2015, <http://www.beet.tv/2015/02/att-advanced-ad.html>; Shawn Curran, “Sr. Product Manager at PlaceIQ,” Linked In, <https://www.linkedin.com/in/shawn-curran-a81a7115>. See also the role of lead generation in AT&T’s digital media analytics work: AT&T, “About IT\Engineering\Technology Jobs At AT&T: Sr. Manager Digital Media Analytics,” http://connect.att.jobs/us/united-states/it_engineering_technology/jobid9908725-sr.-manager-digital-media-analytics; AT&T AdWorks, “Insights,” <http://adworks.att.com/insights.html>; Valerie Vargas, “Vice President—Advertising & Marketing Communications at AT&T,” Linked In, <https://www.linkedin.com/in/valerie-vargas-a55b765/>; “AT&T: Lead Product Development Mgr, Big Data Algorithms and Insights,” KD Nuggets, <http://www.kdnuggets.com/jobs/14/03-19-att-lead-product-development-mgr-big-data-algorithms-insights.html>. AT&T Labs work on Big Data also plays a role: “On a given day we are poring through billions of transactional, spatio-temporal, and unstructured data records, and have developed cutting edge tools for streaming data management, analysis, and visualization of this data.” AT&T Research, “Our Research: Big Data,” http://www.research.att.com/evergreen/what_we_do/research2.html?fbid=R8lFlZ4tgIi.

¹⁸ MapR, “Comcast Uses MapR for New Advertising Platform That Provides Real-Time Targeted Ads,” <https://www.mapr.com/resources/comcast-uses-mapr-new-advertising-platform-provides-real-time-targeted-ads>.

¹⁹ Rubicon’s Advertising Automation Cloud, “one of the largest cloud and Big Data computing systems in the world, leverages over 50,000 algorithms and analyzes billions of data points in real time” to buy and sell individuals to marketers. It conducts 18 billion transactions per week, makes “300 real-time data-driven decisions per transaction,” and “is constantly self-optimizing” as it analyzes consumer data. Comcast uses Rubicon’s platform to enable advertisers to “bid in real-time” to target people that access Xfinity.com and xfinityTV.com. Comcast Ventures, “Our Portfolio: The Rubicon Project,” <http://www.comcastventures.com/portfolio/rubicon-project>;

- By acquiring mobile-marketing-data company Millennial Media, Verizon gained access to customer data gathered by more than 60,000 apps, including “location, social, interest, and contextual” information. Millennial has “developed more than 700 million active server-side unique user profiles, over 60 million of which link multiple mobile devices and PCs to a single specific user ...,” with some 175 million monthly unique users in the “United States alone.”²⁰

Data-driven digital marketing is now central to every part of the communications, media and advertising landscape. While there are important distinctions between what an ISP and a Google or Facebook does, there are also largely shared business practices and a similar overall objective: to gather and generate revenues from individuals’ information and their daily interactions. This increasingly involves the use of video.²¹ The Federal Communications Commission’s pending proceeding on privacy should examine all the ways that broadband networks operated by Internet service providers gather and use consumer information today. The review and policy proposals need to address the data-

Rubicon, “Automation Cloud,” <https://rubiconproject.com/automation-cloud/>; Rubicon, “Buyer Cloud,” <https://rubiconproject.com/buyer-cloud/>; Jack Norris, “Big Results from Big Data—The Comcast Spotlight and Rubicon Project New Business Partnership,” MapR Blog, 30 July 2014, <https://www.mapr.com/blog/big-results-big-data---comcast-spotlight-and-rubicon-project-new-business-partnership>; Robert Andrews, “FreeWheel Plugs In Videology Ahead Of Upfronts: Rothwell,” Beet.TV, 25 Mar. 2015, <http://www.beet.tv/2015/03/4afreewheelrothwell.html>.

²⁰ “AOL to Deepen its Programmatic Leadership with Agreement to Acquire Millennial Media,” 3 Sept. 2015, <http://www.millennialmedia.com/press/aol-to-deepen-its-programmatic-leadership-with-agreement-to-acquire-millennial-media>; Millennial Media, “Annual Report,” 2015 Form-10-K, <http://investors.millennialmedia.com/phoenix.zhtml?c=238412&p=irol-sec>; Nitesh Patel, “AOL’s Acquisition of Millennial Media Will Strengthen the Reach and Depth of Verizon’s Mobile Advertising Capabilities,” Strategy Analytics,” 7 Sept. 2015, <https://www.strategyanalytics.com/strategy-analytics/blogs/media-services/wireless-media/wireless-media/2015/09/07/aol-s-acquisition-of-millennial-media-will-strengthen-the-reach-and-depth-of-verizon-s-mobile-advertising-capabilities#.VtHgKhj-BVo>.

²¹ For example, Google’s “Partner Select” programmatic video marketplace partners include “over 30 broadcasters, premium publishers and major brands have joined the marketplace including CBS Interactive, Fox News, Discovery, Animal Planet,” and others. Tyler Loechner, “Google Names Programmatic Video Marketplace Partners: Fox News, HGTV, Netflix On Board,” Media Post Real-Time Daily, 6 Jan. 2015, <http://www.mediapost.com/publications/article/241217/google-names-programmatic-video-marketplace-partne.html>. “AOL’s mobile and video advertising technology was the primary draw for Verizon, as it looks to capitalize on two of the biggest trends in the media and advertising industry: 1) The shift of media viewing time from traditional media to mobile devices 2) The move from manual digital ad purchases to programmatic buying.” Trefis Team, “With AOL In The Bag, What’s Next For Verizon?” *Forbes*, 24 June 2015, <https://www.verizondigitalmedia.com/verizon-aol/>.

targeting relationships that ISPs have with leading digital marketing companies, including Google, Facebook, ad exchanges, data brokers, and advertisers.²²

In addition to threats to privacy, there are practices that use data that can discriminate or harm vulnerable consumers, which should also be addressed by the FCC—such as the targeting of low-income households for loans through the use of video, the role of ethnic/racial data used in a digital profile, and how data about or involving children and adolescents are used for digital marketing purposes.²³

This report examines AT&T, Comcast, Cablevision, Charter, Cox, Verizon, Dish, Time Warner Cable, Viacom, Google, News Corp. (Fox), Turner Broadcasting (Time Warner), and Disney, focusing on some of their recent data- and video-related advertising practices. Next year (2017), spending for digital ads will surpass TV for the first time, totaling more than \$77 billion; TV ad spending is predicted to be around \$72 billion. Data-driven video advertising delivered to multiple “screens” increasingly plays a key role driving all this advertising.²⁴ With consumers’ appetite for video content growing,

²² For example, the practice of synchronizing ad campaigns on TV and Facebook, or the use of Google/DoubleClick services. See “4C Launches SaaS Product for Programmatic TV Synced Ads Across Channels,” 6 Jan. 2016, <http://www.4cinsights.com/2016/01/06/saas-tv-synced-ads/>; “Mediasynced—Radio & TV Commercial Sync with Online Advertising Campaigns,” YouTube, 22 Aug. 2013, <https://www.youtube.com/watch?v=RjfufERnA2Q>; Peter White, “Facebook Touts Benefits of TV Ads Synchronized with Social Media,” ReThink Research, 27 Mar. 2014, <http://www.rethinkresearch.biz/articles/facebook-touts-benefits-of-tv-ads-synchronized-with-social-media/>; Google, “Implement Nielsen Digital Ad Ratings,” DoubleClick Ad Exchange Buyer Help, <https://support.google.com/adxbuyer/answer/6177933?hl=en>; Federal Communications Commission, “Broadband Consumer Privacy Proposal Fact Sheet,” <https://www.fcc.gov/document/broadband-consumer-privacy-proposal-fact-sheet>; Skip Brand, “Fantastic Four: Comparing Agency Trading Desks’ Programmatic Efforts,” Media Post Programmatic Insider, 25 Nov. 2014, <http://www.mediapost.com/publications/article/238969/fantastic-four-comparing-agency-trading-desks-pr.html>.

²³ See “Finding Low Income Renters on TV,” AudienceXPress Media Kit, <http://www.audienceexpress.com/media-kit/>. There is a growing use of racial/ethnic data for cross-device targeting. See, for example, Multicultural Marketing Resources, “Get to Know Your Customers with Ethnic Technologies’ Proprietary Analytics,” <http://multicultural.com/multicultural-articles/get-to-know-your-customers-with-ethnic-technologies-proprietary-analytics>; Mobile Marketing Association, “Guidance Report: Location Audience Targeting,” http://www.mmaglobal.com/files/documents/guidance_report_location_audience_targeting.pdf; Refuel Agency, “Multicultural Digital Marketing Solutions,” <http://www.refuelagency.com/tactics/multicultural-digital-marketing/>; Kantar Media, “Hispanic Media,” <http://www.kantarmedia.com/us/our-solutions/media-planning-tools/srds-media-planning-platform/srds-online-databases/hispanic-media>.

²⁴ eMarketer, “Digital Ad Spending to Surpass TV Next Year,” 8 Mar. 2016, <http://www.emarketer.com/Article/Digital-Ad-Spending-Surpass-TV-Next-Year/1013671>; eMarketer, “Mobile Spearheads Digital Video Advertising’s Growth,” 22 Feb. 2016, <http://www.emarketer.com/Article/Mobile-Spearheads-Digital-Video-Advertisings-Growth/1013611>; Alex Palmer, “Magna Global: Programmatic Will Eat Half Of Display And

regardless of what screen they use, a digital data “arms race” is underway that is transforming the online and TV programming marketplace. U.S. consumers face an online and TV-connected video system where privacy is effectively lost—replaced by an “always-on” and “everywhere,” but largely invisible, system that continually gathers information from and about us. Among the key (and interrelated factors) that have created this major challenge to consumer privacy are the following:

- **The acquisition of powerful new data technology assets:** ISPs have been on a shopping spree to help build out their data-targeting system across devices and platforms. For example, Verizon acquired both AOL and Millennial Media in 2015. Comcast bought ad-technology companies Visible World (which included AudienceXpress) in 2015 and FreeWheel Media the previous year.²⁵ Through its acquisition of DirecTV, AT&T gained a major new way to use data to target its customers.²⁶
- **The unchecked expansion of commercial data collection by ISPs and others to identify, reach, and try to influence consumers regardless of where they are:** Consumers are being tracked whether they are online at home or using a mobile device elsewhere.²⁷ ISPs are working more closely with leading data brokers, marketing “clouds,” and companies specializing in both cross-device

Video Ad Budgets By 2019,” <http://adexchanger.com/online-advertising/magna-global-programmatic-will-eat-half-of-display-and-video-ad-budgets-by-2019/>.

²⁵ Haley Sweetland Edwards, “Here are the Other Companies Comcast is Gobbling Up,” *Time*, 16 July 2014, <http://time.com/2991782/comcast-time-warner-cable-merger/>; Ryan Lawler, “Comcast Is Acquiring Video Ad Company FreeWheel For \$320 Million,” *TechCrunch*, 1 Mar. 2014, <http://techcrunch.com/2014/03/01/comcast-freewheel/>; Visible World, “About Us,” <http://www.visibleworld.com/about/>; Seth Haberman, “The Next Step for Visible World: Joining One of the Most Innovative Media and Technology Companies in the Country,” *Visible World Blog*, 4 June 2015, <http://www.visibleworld.com/blog/the-next-step-for-visible-world-joining-one-of-the-most-innovative-media-and-technology-companies-in-the-country/>; Kelly Liyakasa, “In Buying Visible World, Comcast Exerts More Influence On The Demand Side,” *Ad Exchanger*, 5 June 2015, <http://adexchanger.com/digital-tv/in-buying-visible-world-comcast-exerts-more-influence-on-the-demand-side/>.

²⁶ “AT&T AdWorks: Leading the Charge in Addressable TV Advertising,” *Adweek*, 29 Nov. 2015, <http://www.adweek.com/sa-article/att-adworks-leading-charge-addressable-tv-advertising-168311>. Among Google’s steady expansion of data-targeting capabilities is its 2014 purchase of mDialog, “which identifies whether ads are targeted to the right consumer.” Garrett Sloane, “Google’s Acquisition Shows It’s Hungry for More Digital Video Advertising,” *Adweek*, 19 June 2014, <http://www.adweek.com/news/technology/googles-acquisition-shows-its-hungry-more-digital-video-advertising-158446>.

²⁷ Merkle, “MerkleONE Data Management Cloud,” <http://www.merkleinc.com/what-we-do/marketing-technology/merkle-data-management-cloud/connected-recognition#.VuW4axj-CiU>. Merkle works with a number of companies involved in video targeting, including AOL (Verizon), Google, and Videology (in which Comcast Ventures is an investor). Merkle, “Our Clients,” <http://www.merkleinc.com/what-we-do/marketing-technology/merkleone-data-management-cloud#.VuW4fxj-CiU>.

tracking and the merging of offline and online data (known as “data onboarding”).²⁸ LiveRamp, Acxiom’s onboarding division, works with Cablevision, Verizon’s AOL, Dish, and others to provide far-reaching data on consumers.²⁹ Acxiom, which acquired digital data company Allant last year, also helps Comcast, Dish Network, and Charter Communications “use first-party and third-party data to precisely reach consumers with relevant messages across TV platforms.”³⁰ Verizon uses elements of the Oracle Marketing Cloud. Nearly all the leading data companies have extensive partnerships with other information-targeting entities, allowing ISPs and others to quickly assemble an arsenal of cross-platform consumer data.³¹ Adobe Marketing Cloud counts Time Warner Cable among its many customers.³²

²⁸ LiveRamp, “Digital Marketer’s Guide to Addressable TV,” p.12, http://lp.liveramp.com/WP-2015-05-AddressableTV_.html (registration required). Overall, there are three broad types of data used in these purportedly “anonymous” transactions: household (limited to less than a third of all TV households in the U.S.), geographic (often supplemented by various demographic insights as well), and, most recently, data collected by Smart TVs. “Certain manufacturers such as Samsung, are creating single sign on IDs to help differentiate individuals in HH across various devices.” AAAA, “Data Driven Video: What Will it Mean to the Future of Video,” Mar. 2015, http://www.aaa.org/agency/media/Documents/4As-DataDrivenVideo_031315_r1af.pdf; Joe Abruzzo, “TV Programmatic: More than Real-Time Bidding,” Media Post Audience Buying Insider, 15 July 2014, <http://www.mediapost.com/publications/article/229985/tv-programmatic-more-than-real-time-bidding.html>.

²⁹ Kent Gibbons, “Acxiom Buys Allant’s Advanced-Ad Business,” *Multichannel News*, 3 Dec. 2015, <http://www.multichannel.com/news/advanced-services/acxiom-buys-allants-advanced-ad-business/395702>; Allant Group, “Our Partners,” <http://www.allantgroup.com/partners.html>; “Acxiom to Acquire LiveRamp,” 14 May 2014, <http://www.acxiom.com/acxiom-liveramp/>; Acxiom, “Audience Onboard for AOL,” <http://www.acxiom.com/audience-onboard-aol/>. As Jennifer Koester, senior vice president of advanced advertising product & data analytics at Cablevision, explains, “The future of the TV ecosystem is ultimately multi-platform addressability, which allows advertisers to reach audiences on any screen. Buys are going to start to meld across screens. As an industry, we will need to ensure an apples-to-apples measurement and consistent metrics to demonstrate the true power of addressability. That’s where platforms like LiveRamp, come into play with the ability to facilitate audiences across screens, helping advertisers to compile more meaningful campaigns.” LiveRamp, “Digital Marketer’s Guide to Addressable TV,” p.8, http://lp.liveramp.com/WP-2015-05-AddressableTV_.html (registration required).

³⁰ “Launch of Acxiom TV Enables Activation of Audience Data across All Television Ad Platforms,” 5 Jan. 2016, <http://www.acxiom.com/launch-acxiom-tv-enables-activation-audience-data-across-television-ad-platforms/>; Acxiom, “Partner Spotlight: Comcast Media 360,” <http://www.acxiom.com/partner-spotlight-comcast-media-360/>.

³¹ Among the numerous examples of such alliances are the following: MediaMath, “Welcome to the Partner Marketplace,” <https://open.mediamath.com/partners>; LiveRail, “Technology Partners,” <https://www.liverail.com/technology-partners/>; Adobe, “Adobe Marketing Cloud Exchange,” <https://marketing.adobe.com/resources/content/resources/en/exchange/marketplace.html>; Acxiom, “Partners,” <http://www.acxiom.com/partners/>. Oracle has recently assembled an array of sources of information on consumers—including from its recent buyouts of BlueKai and

- **ISPs are operating or affiliating with powerful data management platforms (DMPs) that help collect and make “actionable” data on consumers that are gathered across their devices and interactions and can be used for ad targeting.**³³ A key reason why Verizon acquired AOL is to take advantage of its

Datalogix. Oracle, “Verizon Personalizes Marketing Communication with Oracle,” <https://www.oracle.com/marketingcloud/customers/success-stories/verizon.html>; “Oracle Buys Datalogix: Creates the World’s Most Valuable Data Cloud to Maximize the Power of Digital Marketing,” 22 Dec. 2014, <http://www.oracle.com/us/corporate/press/2395487>. See also Adobe Marketing Cloud, “Every Day is a New Day in Digital for Time Warner Cable,” YouTube, 1 Apr. 2015, <https://www.youtube.com/watch?v=4H88tIQWBqY&feature=youtu.be>; and note Comcast’s use of Adobe marketing services as well: Adobe, “Customer Showcase / More Stories,” <http://www.adobe.com/customershowcase/stories.html>. The Oracle ID Graph “connect[s] identities across disparate marketing channels and devices to one customer ... enabling marketers to tie their interactions to an actionable customer profile. Oracle, “Connect with an Individual Customer Across All Channels & Devices,” <https://www.oracle.com/marketingcloud/products/data-management-platform/id-graph.html>; Kelly Liyakasa, “Behind The Data Cloud, The Basis Of Oracle’s ID Graph,” Ad Exchanger, 16 Nov. 2015, <http://adexchanger.com/data-exchanges/behind-the-data-cloud-the-basis-of-oracles-id-graph/>.

³² Adobe, “Time Warner Cable is More Than Television, Internet, and Telephone,” <http://www.adobe.com/content/dam/Adobe/en/customer-success/pdfs/time-warner-cable-marketing-cloud-case-study.pdf>. Nielsen, which partners with nearly every media company, including to help with ad targeting, acquired online data provider eXelate, which has “one of the largest audience data sets in the world with over 5 billion unique device IDs and devices worldwide, including approximately 95% of the U.S. online audience. Nielsen acquired data broker eXelate, which has “one of the largest audience data sets in the world with over 5 billion unique device IDs and devices worldwide, including approximately 95% of the U.S. online audience.” Note eXelate is involved with online video provider Brightroll and Verizon’s Precision Market Insights. eXelate, “BrightRoll Expands Suite of Mobile Audience Targeting Solutions,” 22 May 2014, <http://exelate.com/resources/news/brightroll-expands-suite-mobile-audience-targeting-solutions/>.

³³ The data that a company actually “owns”—such as customer information and purchases from a database—is called “first-party” information and is the most valuable Patrick Dolan, “Data Segments & Techniques: A New Lexicon,” IAB, 22 Jan. 2016, <http://www.iab.com/news/data-segments-techniques-a-new-lexicon/>. Today, companies are able to “layer” in their customer data profiles additional information—called “second-” and “third-” party data. Second-party data, is “first-party” data that is purchased or exchanged by another company to use, such as a “trusted supplier, retailer or publisher.” Third-party information is collected and sold by data brokers and others that brings insights and other information useful for targeting—such as a person’s buying habits and personal characteristics. “Second party data is first party data that can be purchased or traded with another brand/publisher. Marketers/publishers can go directly to companies they know will have the most relevant data, which is missing from their own first party data.” Rebecca Muir, “Second-Party Data: Not Second Rate,” Exchange Wire, 19 Jan. 2016, <https://www.exchangewire.com/blog/2016/01/19/second-party-data-not-second-rate/>. See also “Second-Party Data About To Go Mainstream,” Ad Exchanger, 29 June 2015, <http://adexchanger.com/data-driven-thinking/second-party-data-about-to-go-mainstream/>; OwnerIQ, <http://www.owneriq.com/>; Experian, “Experian Marketing Suite: Activate Your

DMP, called ONE by AOL, which promises a “Single view of the user: ONE unifies multiple data sources and provides marketers a holistic view of the consumer journey through the entire marketing funnel; improving targeting, message sequencing and ROI.”³⁴ Comcast’s “advanced advertising system,” involving “real-time data” and a “cloud delivery system,” is designed to process its “associated data flows into the hundreds of terabytes of data daily and approaching a petabyte per day” Turner’s “Data Cloud” DMP for ad targeting works with leading data companies, including Krux, Epsilon and the Oracle Marketing Cloud.³⁵

- **The use of new cross-device measurement and attribution techniques are also a significant privacy threat:** Data are gathered on our interactions across computer, mobile, and video devices to measure the impact of online, video, and other ads.³⁶ The tracking of subscribers on all their devices to determine the

Offline Audiences for True 1:1 Addressable Advertising Across Channels,” <http://www.experian.com/marketing-services/digital-audience-matching.html>; Neustar: “Neustar AdAdvisor® Guide to Third Party Data,” <https://www.neustar.biz/resources/product-literature/adadvisor-guide-to-third-party-data>. ISPs and other companies own or use what are called data management platforms (DMPs) that help bundle and activate all of this information, for marketing and other purposes. Tyler Loechner, “AOL Launches A Data Management Platform, Unveils TV Ad Targeting Tech,” Media Post Real-Time Daily, 28 Sept. 2014, <http://www.mediapost.com/publications/article/235106/aol-launches-a-data-management-platform-unveils-t.html>; AOL, “ONE by AOL,” <http://www.aolplatforms.com/onebyaol>.

³⁴ AOL, “ONE by AOL”; “AOL Launches ONE by AOL,” 14 Apr. 2015, <http://corp.aol.com/2015/04/14/aol-launches-one-by-aol/>.

³⁵ “Part of the data flow stores data in the platform’s MapR Distribution for Hadoop that runs Hive and Oozie (a job scheduler that supports ETL [extract, transform and load] database functions). This allows Comcast analysts to perform business analytics against the MapR Hadoop cluster. The group also uses MapR-DB—a key piece of the MapR implementation—to query a massive data store in real time to fine tune the ad delivery system.” “Comcast Develops Advanced Advertising Platform to Handle Real Time Big Data,” Datanami, 15 Sept. 2015, <http://www.datanami.com/2014/09/15/comcast-develops-advanced-advertising-platform-handle-real-time-big-data/>. See also its work with Rubicon Project. Jack Norris, “Big Results from Big Data—The Comcast Spotlight and Rubicon Project New Business Partnership,” MapR Blog, 30 July 2014, <https://www.mapr.com/blog/big-results-big-data-%E2%80%93-comcast-spotlight-and-rubicon-project-new-business-partnership>; “Turner Broadcasting Aligns With Epsilon, Krux And Oracle Power New Turner Data Cloud And Turner Premium Marketplace,” 30 June 2015, <http://www.krux.com/company/press-room/press-releases/turner-broadcasting-aligns-with-epsilon-krux-and-oracle-power-new-turner-data-cloud-and-turner-premium-marketplace/>. Comcast’s NBC division also works with Krux, as do other programmers, networks, and leading advertisers. Krux, “NBCUniversal Data Leakage Saga Comes to an End, Thanks to Krux,” <http://www.krux.com/customer-success/case-studies/nbcu/>.

³⁶ The role of cross-platform measurement and attribution—understanding what influences a consumer to buy a product or engage in some behavior—illustrates another key dimension where privacy is at risk. In addition, measurement information can be used to trigger different responses of individuals, including by dynamically changing the messaging for a more personalized response. ISPs can engage in “closed-loop measurement,” for example, where “sales transaction

impact of marketing, including what they buy and ads they view, is a privacy concern as well. There is a range of undisclosed-to-consumer practices that help operators and advertisers more precisely determine the impact of digital marketing, including when delivered by set-top and other connections. These practices foster further tracking and targeting of consumers, illustrating data protection concerns.³⁷

data” are assessed “against set-top box exposure” and “on sales that take place on any channel, including websites, apps, stores, branch locations, or over the phone.” LiveRamp, “Digital Marketer’s Guide to Addressable TV,” p.13, http://lp.liveramp.com/WP-2015-05-AddressableTV_.html (registration required). According to the AAAA, “Certain manufacturers such as Samsung, are creating single sign on IDs to help differentiate individuals in HH [households] across various devices.” AAAA, “Data Driven Video: What Will it Mean to the Future of Video,” Mar. 2015, http://www.aaaa.org/agency/media/Documents/4As-DataDrivenVideo_031315_r1af.pdf.

³⁷ There is also growing consolidation in the measurement industry that is triggered by the requirements of cross-device monitoring. For example, comScore and Rentrak have merged, paving the way for a “new cross-platform currency” that will track consumer behavior across platforms. “comScore and Rentrak to Merge, Creating Leading Cross-Platform Measurement Company,” 29 Sept 2015, <http://www.comscore.com/Insights/Press-Releases/2015/9/comScore-and-Rentrak-to-Merge>; Nielsen, “Solutions: Nielsen Digital Ad Ratings,” <http://www.nielsen.com/us/en/solutions/capabilities/digital-ad-ratings.html>. See also Coalition for Innovative Media Measurement, “Cross-Platform Measurement,” <http://cimm-us.org/initiatives-2/cross-platform-measurement>. comScore, for example, promises “total view of the consumer” across multiple platforms (including live TV, DVR, Desktop PC, smartphone, Tablet, radio, OTT, and TV VOD), with “Person-Centric insights for analyzing audiences across multiple platforms,” Rentrak, which was recently acquired by comScore, offers a range of services, focusing especially on TV. “Beyond traditional Nielsen TV data, Rentrak provides RPD (return path data) based on STBs from Dish, DirecTV, Charter and Fourth Wall while comScore is developing a new syndicated cross platform data set based on their successful “Project Blueprint” pilot that they ran for ESPN.” AAAA, “Data Driven Video: What Will It Mean to the Future of Video,” 2015, <http://goo.gl/MrxL5x>. “Having our massive, passive measurement of television viewership allows us to combine audience information with other databases in a way that is impossible to do with samples,” the company claims. “A viewership sample of 40,000 does not provide enough instances to match against a database with billions of transactions, such as MasterCard purchase transactions, since the overwhelming majority of those purchase transactions would be made by viewers not in the sample.” Rentrak, “2014 Annual Report: Precisely Measuring Movies & TV Everywhere,” <http://www.renrak.com/downloads/Rentrak-AnnualReport2014-FINAL.pdf>. Nielsen’s “Grabix is a web-based application, marrying Nielsen’s minute-by-minute television ratings to actual audio and video content. It allows users to: See which elements of your program content retain viewers, or drive them away; Capture ratings for each individual program segment across demographics ...” Nielsen, “Grabix,” <http://en-us.nielsen.com/sitelets/cls/grabix.html>. Google’s Adometry TV/Video measurement, meanwhile, offers its own brand of cross-device metrics, focusing especially on “TV sync” campaigns that supplement TV spots with synchronized online ads. “When consumers see your brand’s commercials during their favorite programming, they often jump to a second screen to search for your product or visit your website,” the company explains. “You can now leverage this multi-screen behavior to turn the dial on your TV spend.” Nielsen, “Grabix,” <http://en-us.nielsen.com/sitelets/cls/grabix.html>. See also Rubicon Project, “Programmatic 101: Attribution,” <http://buyercloud.rubiconproject.com/content/101/attribution/>; Greg Sterling, “Placed Brings

- **Phone and cable ISPs and other providers of online video claim they are “privacy-compliant,” don’t use “PII” (personally identifiable information), and that their data are so-called “anonymous” and based on “aggregate” formulations:** This is merely a “don’t-look-too-closely” claim designed to head off the scrutiny their practices require. ISPs and others tell policymakers that data targeting isn’t personal—but make it clear when discussing their capabilities to clients and others that they are engaged in various ways to target individuals. It is also more than ironic that while ISPs and other data-targeting media companies have created “automated” and “self-service” platforms that allow marketers to use an arsenal of data to target individuals and their families, the people actually affected have no such knowledge or ability to effectively control it.³⁸

The Federal Communications Commission (FCC) is in a unique and historic position to ensure the privacy of the public. The commission should adopt rules that help reverse the tide of ever-growing and unchecked collection and use of consumer data across devices. A truly “open” Internet that embraces “network neutrality” must have privacy and consumer protection at its core. Otherwise, powerful data and digital marketing gatekeepers will be in an even more influential position to influence the kinds and diversity of programming available in the marketplace. The distinctions posed by the FCC between ISPs and so-called “edge” providers needs to be reviewed in light of how the consumer digital data marketing system actually works. For example, the ability to target individuals who are viewing a cable or streaming video program when they subsequently (or simultaneously) turn to Facebook or some other application (using forms of synchronized ad targeting), illustrates how the collaboration between ISPs and other data companies requires a comprehensive FCC privacy framework.³⁹

Offline Attribution To More Programmatic Players,” Marketing Land, 28 Apr. 2015, <http://marketingland.com/placed-brings-offline-attribution-to-more-programmatic-players-126762>; Google Analytics, “Introducing the Google Analytics 360 Suite,” 15 Mar. 2016, <http://analytics.blogspot.ie/2016/03/introducing-google-analytics-360-suite.html>.

³⁸ See Cablevision, for example. “With just a few jabs at an iPad screen, the TAPP interface allows buyers to target customers in specific high-density zip codes throughout the New York DMA who also happen to be in the market for a new car or a set of golf clubs.” Anthony Crupi, “Cablevision 'TAPs' Into the Power of Addressable Advertising,” *Ad Age*, 30 Apr. 2015, <http://adage.com/article/media/cablevision-tapps-power-addressable-advertising/298339/>.

³⁹ For example: “Knowing that TV and Facebook complement each other, we’re introducing a way for advertisers to plan, buy and measure Facebook video ads using target rating point (TRP) as the metric. Marketers can plan a campaign across TV and Facebook with a total TRP target in mind, and they can buy a share of those TRPs directly with Facebook.” Facebook for Business, “Introducing New Ways to Buy, Optimize and Measure Ads for a Mobile World,” 27 Sept. 2015, <https://www.facebook.com/business/news/ad-week-2015-announcements>. See also Twitter, “Business: TV Targeting,” <https://business.twitter.com/help/tv-targeting?lang=en&location=na>; Google, “Announcing New Ways for TV Providers to Manage Cross-screen, Addressable Digital Video Advertising,” 13 Apr. 2015, <http://doubleclickadvertisers.blogspot.com/2015/04/new-ways-for-tv-providers-to-manage.html>.

Today, consumers largely have no protection when it comes to their information. The Federal Trade Commission has been constrained for decades in its ability to issue regulations.⁴⁰ Industry “best practices” however, have done nothing to even modestly check the tsunami of data targeting practices now at work. As the following profiles of leading ISPs, networks, and a major online video ad company illustrate, the growing use of sophisticated data practices (such as programmatic advertising) require a comprehensive set of policy safeguards by the FCC. These policies should include consumer protection rules that ensure that consumer information isn’t used in unfair and discriminatory ways that can harm individuals and families—such as using financial data to target high-interest credit card or loan offers to at-risk consumers; singling out seniors to promote unnecessary medical devices and services; basing targeting profiles on racial and ethnic data; and taking advantage of young people.⁴¹

The FCC should enact rules to ensure a meaningful decision-making process by individuals, allowing them to have the right to determine and control how their information can be gathered and used. This should address all services conducted by an ISP, including when used to offer telecommunications-related services. More than “opt-in” consent is necessary. The commission’s policies for privacy should reflect long-standing “Fair Information Practices” (FIPs) that are implemented in ways that address contemporary consumer data practices.⁴² For example, the FCC should adopt data requirements that prevent pervasive and continuous data collection—such as with cross-device tracking and offline/online data profiling. It should also implement “data-

⁴⁰ An exception is the Children’s Online Privacy Protection Act (COPPA) a 1998 federal law protecting the privacy of children under 13. The authors of this report played a key role in its enactment and with its ongoing enforcement by the FTC.

⁴¹ There is tremendous interest to better use data to target children and adolescents. For example, a new project a new project undertaken by the Coalition for Innovative Media Measurement (CIMM) selected RealityMine, “a leading provider of mobile market research technologies and consumer analytics ... to undertake the Children and Teens’ Measurement project. The project’s aim is to make possible a thorough and comprehensive view of cross-platform, digital and mobile measurement of content and ads among children and teens aged two to 17. The initiative, which includes TiVo Research TV viewership data, will be the first to use a router meter for a whole home view of Internet content consumption combined with state of the art passive metering, audio fingerprinting content recognition, and advanced behavioral analytics. ‘With the ability to comprehensively analyze the total media consumption and behavior of kids and teens, our industry will be able to gain unique insights, derived from quantifiable data, into how all digital devices are being used by the next generation of media users,’ said Jane Clarke, CEO and managing director, Coalition for Innovative Media Measurement. ‘For the first time we’ll be able to have a look inside the new dynamics of cross-media usage of the entire family within a household, describe the total consumption behaviors of individuals and obtain a view on total viewership across platforms of individual programs.’” “RealityMine Chosen by Coalition for Innovative Media Measurement to Conduct Youth Total Cross-Media Usage Measurement Project,” 16 June 2015, <http://cimm-us.org/realitymine-chosen-by-coalition-for-innovative-media-measurement-to-conduct-youth-total-cross-media-usage-measurement-project/>.

⁴² Robert Gellman, “Fair Information Practices: A Basic History,” 4 Dec. 2015, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2415020.

minimization” safeguards to ensure that online records are kept to a minimum and cannot be used for ongoing targeting. The commission must also make it clear that there cannot be any deep-packet inspection that allows ISPs to examine the content of communications.

The following profiles illustrate the expansion of data practices by ISPs and others that must be addressed by the FCC’s forthcoming privacy proceeding.

ISPs and Other Video Providers Using Data to Watch Us Across Devices

AT&T

“Our value proposition is to find and target audiences based on the data we have that nobody else has access to.”

— Maria Mandel Dunsche, vice president of marketing & ad sales strategy,
AT&T AdWorks⁴³

“Reach the audience you want. Without paying for the ones you don’t. Combine the power of your 30-second TV ad with the power of digital”
AT&T AdWorks⁴⁴

“Data is at the heart” of AdWorks, the Big Data-enabled ad division of AT&T that claims to have “the industry’s foremost targeting platform.” The AdWorks system enables marketers to “reach your audience everywhere they watch on every screen,” spanning “130 million US customer connections across TV, Internet and mobile.”⁴⁵ Moving beyond what it says is the “largest TV subscriber base, with over 26 million households nationwide,” AT&T is expanding its ability to use data to reach consumers across devices, including video content “accessed on smartphones, tablets, desktop computers and connected devices.”⁴⁶ Its data-targeting system involves the use of its “100% IPTV” platform, which enables significant data collection and audience-targeting capabilities for advertising.⁴⁷

AT&T has integrated its TV Blueprint targeting system with the “addressable” individual household ad-targeting capabilities it acquired from DirecTV when it took control of the leading satellite company last year.⁴⁸ TV Blueprint “uses advanced data, science and

⁴³ “An Interview with Maria Mandel Dunsche,” eMarketer,
<http://www.emarketer.com/corporate/clients/att>.

⁴⁴ AT&T AdWorks, “Targeting,” <http://directvadsales.com/targeting.html?lpos=Header:2>.

⁴⁵ AT&T AdWorks, “Cross-screen,” <http://directvadsales.com/crossscreen.html?lpos=Header:2>;
<https://datajobs.com/AT-T/AdWorks-Hadoop-Engineer-Job~2889>;
[http://www.theladders.com/ATT-AdWorks-Director-IPTV-Adv-Bus-Dev-Advertising-Solutions-New-York-NY\[NY\]3415297?x=q](http://www.theladders.com/ATT-AdWorks-Director-IPTV-Adv-Bus-Dev-Advertising-Solutions-New-York-NY[NY]3415297?x=q)

⁴⁶ AT&T AdWorks, “TV Everywhere,”
<http://directvadsales.com/crossscreen.html?lpos=Header:2>; AT&T AdWorks, “The Leader in Addressable TV Advertising,” <http://adworks.att.com/?lpos=Header:1>.

⁴⁷ “AT&T AdWorks Director IPTV Adv Bus Dev, Advertising ...,” TheLadders,
[http://www.theladders.com/ATT-AdWorks-Director-IPTV-Adv-Bus-Dev-Advertising-Solutions-New-York-NY\[NY\]3415297?x=q](http://www.theladders.com/ATT-AdWorks-Director-IPTV-Adv-Bus-Dev-Advertising-Solutions-New-York-NY[NY]3415297?x=q); <http://www.cisco.com/c/en/us/solutions/collateral/service-provider/iptv->.

⁴⁸ “AT&T’s Mike Welch on Programmatic, Addressable and the Coming Multi-billion-dollar Advanced Ad Biz,” FierceCable, 16 Dec. 2015, <http://www.fiercecable.com/special-reports/atts-mike-welch-programmatic-addressable-and-coming-multi-billion-dollar-ad>; “AT&T AdWorks

technology to deliver data-optimized media plans aimed to reach your target audience at scale. Using a predictive modeling algorithm developed by AT&T Labs,” along with other information, AT&T promises to deliver an “advertiser’s target audience when and where they are most likely watching content.”⁴⁹ It also incorporates a consumer’s mobile-device data, including “what wireless device they are using, what operating system they are using for their device, how large a data plan they have, and when their contract expires.”⁵⁰ TV Blueprint “gives advertisers working with AT&T the ability to reach people based on factors like device, operating system, whether or not they’re heavy data users or the status of their carrier contract,” using “sophisticated second-by-second set-top box data” and other information.⁵¹ AT&T pulls data “from millions of set-top boxes” and analyzes what a consumer views (such as on unaffiliated pay-cable networks), and uses these data to target consumers based on their viewing profile.⁵²

The company also takes advantage of its “single-person household viewer data derived from 15 million AT&T U-verse set-top boxes.”⁵³ According to Maria Mandel Dunsche, vice president of marketing and ad sales strategy at AT&T AdWorks, this type of targeting is more accurate. “[In a] multiperson household, it’s harder to nail down who is

and DIRECTV Advertising Sales Combine to Form One Advertising Organization,” 30 July 2015, http://about.att.com/story/att_adworks_now_represents_directv_advertising_products.html. AT&T’s acquisition of DirecTV also marks a major shift in the company’s approach to the multiscreen marketplace. Without abandoning its U-verse video platform altogether, AT&T will stop investing in that platform and “instead use a ‘derivative’ of DirecTV’s in-home equipment to create a new, in-home TV product that the company said will display content from AT&T and others. ... AT&T added [that] the platform, which it called a ‘home media gateway’ ... will support third-party broadband connections, LTE connections and AT&T broadband connections into users’ homes. ... AT&T is also developing a new content gateway that will link to its new in-home equipment,” allowing “users to access the same content outside their homes, including on networks that are not managed by AT&T.” This new content gateway, which will work with AT&T’s in-home platform, will reportedly become a consolidated, single platform over the next two-to-three years. Mike Dano, “AT&T to Stop Investing in U-verse CPE, Will Move to New In-home Architecture Using DirecTV System,” FierceCable, 12 Aug. 2015, <http://www.fiercecable.com/story/att-stop-investing-u-verse-cpe-will-move-new-home-architecture-using-direct/2015-08-12>.

⁴⁹ “The optimized media schedule is then distributed nationally across 70 million HHs.” AT&T AdWorks, “Addressable TV, TV Blueprint, AddressablePlus,” <http://adworks.att.com/products/tv-audience-targeting/>.

⁵⁰ “AT&T AdWorks Adds Anonymous Wireless Customer Data to TV Ad Targeting Platform,” FierceCable, 29 July 2014, <http://www.fiercewireless.com/story/att-adworks-adds-anonymous-wireless-customer-data-tv-ad-targeting-platform/2014-07-29>.

⁵¹ Kelly Liyakasa, “AT&T AdWorks Officiates Marriage Between Mobile Data And TV Audiences,” AdExchanger, 30 July 2014, <http://adexchanger.com/digital-tv/att-adworks-officiates-marriage-between-mobile-data-and-tv-audiences/>.

⁵² “AT&T’s Mike Welch on Programmatic, Addressable and the Coming Multi-billion-dollar Advanced Ad Biz.”

⁵³ Liyakasa, “AT&T AdWorks Officiates Marriage Between Mobile Data And TV Audiences.”

actually watching the TV,” Mandel Dunsche explained. “By narrowing it down to single-person household, you get a better idea of what different audiences view and can then extrapolate and develop a more broad-based media plan.”⁵⁴

Available data-marketing products from AT&T AdWorks include “Digital Boost,” which tracks users from the TV screen to subsequent activity on the Internet and the mobile Web; “In-Store Boost,” which uses hyper-local geo-location tracking to monitor the “path to purchase” from TV ad to retail transaction; “Purchase Boost,” targeted TV advertising designed to stimulate increased in-store activity; “Tune-in Boost,” measurement and refinement of TV advertising; and “iChannel Ad Effectiveness,” targeted advertising on personalized interactive TV channels. AT&T, in short, promises “More scale, more targeted, more screens. Billions of cross-screen advertising impressions including TVE [TV Everywhere], online and mobile; industry-leading technology delivering sophisticated second-by-second set-top box data; [and] ... [t]he industry’s foremost targeting platform [with the] Largest TV subscriber base with over 26 million households nationwide.”⁵⁵

There are also AT&T AdWorks products for its mobile ad platform, where subscribers are encouraged to “populate their name, address, phone number and email address” on forms designed to give advertisers a “seamless, hassle free, real-time interaction.”⁵⁶ AT&T also incorporates “custom list” data provided by its advertisers for targeting. For example, it explains that when an automotive company provides a “list of households that have auto leases expiring in the next three months,” it uses a data broker such as Acxiom or Experian to create a “match” with their subscribers, so they can be targeted.⁵⁷

AT&T AdWorks has developed a “cross-screen system to match users’ mobile, online and television devices together based on identifiers and systems” that the company has “access to.” AT&T AdWorks also developed a “location-based product line capable of using device and cell phone tower based data to determine what locations users listed.”

⁵⁴ “Essentially, single-person household data can make multiperson household campaigns smarter. Although AT&T U-verse reaches 5.9 million households, AT&T AdWorks gives marketers the ability to run data-optimized TV Blueprint media buys and reach as many as 50 million households via its multichannel video programming distribution network (MVPD) that includes players like Cox Communications. ‘What we can model, for example, is if somebody is trying to reach a tech-savvy audience,’ Mandel Dunsche said. ‘We can find women who are 25-35 with income levels over \$100,000 that are married with children and have smartphones and are heavy data users. We can get that granular level in our targeting that goes beyond the standard age and gender that traditional TV planning uses.’” Liyakasa, “AT&T AdWorks Officially Marries Mobile Data And TV Audiences.”

⁵⁵ AT&T AdWorks, <http://directvadsales.com/>.

⁵⁶ AT&T, “AT&T AdWorks Announces Click-to-Fill,” 1 Oct. 2012, <http://www.att.com/gen/press-room?pid=23405&cdvn=news&newsarticleid=35455&mapcode=>; http://cargocollective.com/timothy_mcauliffe/filter/introduction/AT-T-Animation-Click-to-Fill

⁵⁷ “AT&T’s Mike Welch on Programmatic, Addressable and the Coming Multi-billion-dollar Advanced Ad Biz.”

AT&T's system is able to "target audiences who visited certain locations as well as report on whether users receiving an advertisement for a location ended up visiting it." Data is "incredibly valuable" to AT&T, explains AT&TAdWorks marketing VP Maria Mandel Dunsche. "... [W]ith 130 million customer connections across various channels—whether it's TV, mobile, broadband, and Wi-Fi, all the way through new channels and screens such as Connected Cars—AT&T has a wealth of very important types of data. But it's not just having the data, it's how you use that data. ... [I]t's really creating actionable insights that make that data valuable."⁵⁸

Every Addressable TV campaign by AT&T, it says, "is fueled by proprietary insights aggregated from over 12 million households, yielding invaluable information about an advertiser's true target. In addition, AT&T AdWorks teams up with leading data partners to expand its intelligence set across multiple industries and categories as well as define the best practices for each. Armed with these insights, brands can optimize the rest of their national ad buys."⁵⁹

AT&T's focus on targeting individual consumers regardless of what device they use, especially mobile phones, has led to new data partnerships. For example, the company is working with Opera Mediaworks and its mobile ad network to take advantage of "very precise mobile location data." According to AT&T, consumers have opted in to "sharing their location" on the apps connected with the Opera platform, which enables Opera to "tie the latitude and longitude of a device and really pinpoint what the home location of a device is."⁶⁰ AT&T AdWorks takes the mobile device's location data and matches it "with the billing address of our addressable TV customers" and then delivers "ads to the mobile devices associated." AT&T boasts that unlike "the Googles, the Facebooks, the Twitters, etc.," it can also send "cross-screen" targeted ads to the TVs. These mobile ads "offer actions such as the ability to click-to-call, add an event to a calendar or receive

⁵⁸ ATT AdWorks also has its own Data Management Platform. Shawn Curran, "Sr. Product Manager at PlacelIQ," Linked In, <https://www.linkedin.com/in/shawn-curran-a81a7115>.

⁵⁹ "Upon completion, post-campaign analyses measure impression delivery (clients pay only for those delivered to their target audience), reach and frequency. But it doesn't end there—AT&T AdWorks can also perform closed-loop analytic studies to determine lift (test vs. control groups) and calculate a true ROI." "AT&T AdWorks: Leading the Charge in Addressable TV Advertising," *Adweek*, 29 Nov. 2015, <http://www.adweek.com/sa-article/att-adworks-leading-charge-addressable-tv-advertising-168311>. AT&T AdWorks also "offers unmatched options for short-form direct response ads. These include placement of your ad in our 11 demographically targeted clusters as well as during premiere live sporting events, on individual networks, and within our interactive channels and addressable capabilities." AT&T AdWorks, "Direct Response," <http://directvadsales.com/directresponse.html?lpos=Header:2>.

⁶⁰ Opera is a Norway-based company now being acquired by a consortium of Chinese entities. Falguni Bhuta, "Opera ASA Receives Acquisition Offer from Chinese Consortium of Companies," 10 Feb. 2016, <http://blog.operamediaworks.com/>; "AT&T AdWorks Launches Cross-Screen Addressable Advertising Trial," 9 Nov. 2015, http://about.att.com/story/adworks_launches_crossscreen_addressable_advertising.html.

relevant coupons. This new ad product can also measure engagement in various ways like a visit to a retail location, coupon redemption and an in-person or digital purchase.”⁶¹

AT&T has also been collaborating with ad-tech specialist Turn to manage the telecom giant’s targeted advertising campaigns, using “Turn’s leading targeting and cross-channel media technology to help AT&T AdWorks’ clients better reach their audiences. The platform employs Turn’s campaign management, ad serving and data management capabilities.”⁶² Turn’s platform provides access to an array of far-reaching data collection, profiling, and targeting capabilities across platforms.⁶³ AT&T also has

⁶¹ “AT&T AdWorks: Leading the Charge in Addressable TV Advertising”; “AT&T’s Mike Welch on Programmatic, Addressable and the Coming Multi-billion-dollar Advanced Ad Biz”; AT&T AdWorks, “Cross-screen.” “AT&T AdWorks can combine AT&T’s ability to deliver household specific ads to more than 12 million households, the largest addressable advertising platform, with Opera Mediaworks’ cross-carrier mobile technology. As a vendor to AT&T, Opera Mediaworks can engage more than 285 million mobile subscribers from major U.S. wireless carriers. The majority of smartphones in the United States already receive customized ads from Opera within thousands of popular apps. This trial extends an advertiser’s reach and helps them better target, drive engagement and measure a campaign’s success from end to end.” “AT&T AdWorks Launches Cross-Screen Addressable Advertising Trial.” “We’re really focused on our owned-and-operated properties through U-verse and third-party relationships to broaden our reach with video and TV ad inventory,” [Maria] Mandel Dunsche [VP of marketing and ad sales strategy at AT&T AdWorks] said. “When we overlay the first-party mobile data we have, I think it [creates] something really unique in the industry.” Quoted in Kelly Liyakasa, “AT&T AdWorks Officiates Marriage Between Mobile Data And TV Audiences,” AdExchanger, 30 July 2014, <http://adexchanger.com/digital-tv/att-adworks-officiates-marriage-between-mobile-data-and-tv-audiences/>. According to Dunsche, “We have all the top national advertisers and work across industry verticals. We’re a top-five online audience network, according to comScore. We have 186 million monthly unique visitors online, and 160 million monthly unique users on mobile platforms. On TV, we have 12.7 million AT&T U-verse set-top boxes, and our AT&T AdWorks Television Audience Network has a reach of more than 37 million households. We have tremendous scale Our value proposition is to find and target audiences based on the data we have that nobody else has access to.” “An Interview with Maria Mandel Dunsche.”

⁶² According to AT&T, “None of the data we store on the Turn systems is personally-identifiable, and as an extra measure of protection we encrypt it before it leaves the AT&T firewall.” “AT&T Adworks and Turn Announce Secure, Private Cloud-based Audience Management Platform,” 29 Mar. 2012, <http://www.att.com/gen/press-room?pid=22639&cdvn=news&newsarticleid=34139&mapcode>.

⁶³ Turn, “Solutions: Digital Data Centralization,” <https://www.turn.com/solutions#digital-data-centralization>; ⁶³ Turn, “Solutions: Consumer Intelligence,” <https://www.turn.com/solutions#consumer-intelligence>. AT&T has established a state-of-the-art facility where its “clients (brands, agencies, and planners) could experience AT&T’s extensive consumer data and understand how AT&T could help them maximize their cross-platform advertising potential, now and in the future. ESI designed the AdWorks Media Lab, a dynamic sensory experience that combines compelling storytelling, data visualizations and high-tech demonstrations, to showcase the power of a targeted and unified multi-platform communications strategy. The Lab experience can be customized for each individual client—from the lighting and visual displays in the reception area to the full presentation components. With a wealth of data at their fingertips and a suite of cutting-edge solutions to explore, clients in the media lab work with

investments and works with online streaming video content providers, such as FullScreen.⁶⁴

AT&T to forge more informed, effective and meaningful connections with the right customers at the right time.” ESI Design, “Our Work: AT&T AdWorks Media Lab,” <http://www.esidesign.com/work/att-adworks-media-lab>. One of the results of this research effort is the emergence of interactive TV advertising, as AT&T AdWorks now offers its clients the opportunity to “engage [their] audience with customized, website-like experiences. Our subscribers can request coupons, enter sweepstakes, find your nearest retail location, and more,” the company promises. AT&T AdWorks, “iTV,” <http://adworks.att.com/interactive.html?lpos=Header:2>. Phil Goldstein, “Report: AT&T Injecting Advertising into Websites When Users Connect to its Wi-Fi Hotspots,” FierceWireless, 26 Aug. 2015, <http://www.fiercewireless.com/story/report-att-injecting-advertising-websites-when-users-connect-its-wi-fi-hots/2015-08-26>. “Our Emmy® Award-winning interactive solutions let you create branded experiences right on your audience’s TVs. Customers are directed to your interactive solution from the ad, so you’re able to collect essential engagement data while your audience is exploring your product.” “At the conclusion of your interactive campaign,” AT&T claims, “you’ll receive complete data detailing all your household impressions and engagement metrics.” AT&T AdWorks, “iTV.”

⁶⁴ “The Chernin Group and AT&T’s Otter Media to Acquire Majority Stake in Fullscreen,” 22 Sept. 2014, http://about.att.com/story/the_chernin_group_and_atts_otter_media_to_acquire_majority_stake_in_fullscreen.html; Brian Steinberg, “AT&T, Fullscreen to Back Digital Influencers in Months-Long Projects,” *Variety*, 11 Feb. 2016, <http://variety.com/2016/digital/news/att-fullscreen-hello-lab-digital-mobile-grace-helbig-1201702913/>.

Cablevision

*“[T]he ability to target down to the household level is a unique capability, when historically it’s been bought on an age and gender basis. Here, we have thousands of attributes. ... Because we’re dealing with authenticated data, we’re not using cookies and proxies to determine who someone is. We have matching attributes, which is more unique than doing say, cookie matching.”*⁶⁵

—Ben Tatta, president, Cablevision Media Sales

In 2015 Cablevision launched its Total Audience Application (TAPP), a programmatic “advanced data-driven tool that automates the planning of addressable and optimized linear television advertising campaigns. ... TAPP combines unique and comprehensive first-party data with the actionable insights marketers need to plan advanced television advertising campaigns in an intuitive interface, transforming the model from spot-based to audience and impressions-based media planning.”⁶⁶ In announcing TAPP, Cablevision Media Sales President Ben Tatta explained that the company was “moving more toward a Google model where it’s much more real-time with the ability to optimize.”⁶⁷

Cablevision’s “Advanced Advertising” division is accelerating work on a portfolio of products involving “dynamic ad insertion for Video on Demand, DVR and IPTV/OTT (over the top), optimized linear, addressable TV, digital, mobile, WiFi, Interactive TV and T-Commerce (TV commerce)” It offers cross-platform targeting and other contemporary data-driven marketing applications, including “programmatic segmentation, customer journey mapping, data onboarding (with Adobe/Epsilon),” integration with Acxiom/LiveRamp, and more.⁶⁸

One of the pioneers in interactive television, Cablevision now serves 2.5 million households and 7 million set-top boxes. A Cablevision executive explained that they are “pulling second-by-second tune-in and viewership data and advertisers are able to append

⁶⁵ Quoted in Kelly Liyakasa, “Cablevision Says Audience Addressability Will Trump Cookies And Proxies,” Ad Exchanger, 4 May 2015, <http://adexchanger.com/digital-tv/cablevision-says-audience-addressability-will-trump-cookies-and-proxies/>.

⁶⁶ “Cablevision Unveils Tapp—An Advanced Media Planning Platform Powered By Census-Level Television Audience Data,” 30 Apr. 2015, <http://www.aaa.org/news/agency/Pages/CablevisionUnveilsTapp-AnAdvancedMediaPlanningPlatformPoweredByCensus-LevelTelevisionAudienceData.aspx>.

⁶⁷ Quoted in Liyakasa, “Cablevision Says Audience Addressability Will Trump Cookies And Proxies.”

⁶⁸ Anthony Q. Bowen, “Director of Media Strategy at Cablevision,” Linked In, <https://www.linkedin.com/in/anthonyqbowen>; Acxiom, “Partner Spotlight: Cablevision,” <http://www.acxiom.com/partner-spotlight-cablevision/>; Cablevision, “Jobs: Associate Product Manager, Advanced Advertising,” <http://jobs.cablevision.com/job/6280739/associate-product-manager-advanced-advertising-new-york-ny/>; Maximiliano Carranza, “Strategic Partnership at LiveRamp,” Linked In, <https://www.linkedin.com/in/maxcarranza>.

tune-in data to first- or third-party data.”⁶⁹ This information is integrated with data provided by advertisers (so-called first-party data) along with third-party data from powerful data brokers such as Acxiom and Experian to identify potential targets. Kristin Dolan, Cablevision’s CEO, explained that the company’s use of set-top and other data helps it bring the capabilities of Internet advertising to its cable targeting:

What we get really excited about is the opportunity to do impression based selling versus household (or GRP type) media schedules [W]e have census level data . . . in our footprint of seven million set top boxes and we record every single channel tune in real-time, 24/7. Imagine seven million “people meters” . . . that are monitoring every single channel on the dial, and taking that information to create customized schedules for advertisers. So it’s not just the 365 People Meters that Nielsen has in our footprint. It’s every single home, and every single set-top and every single channel. You come to us and say you want to target a particular customer that has these behavioral trends or these types of income—insert any item you can tell us about and we can put together in real-time a customized media schedule that will be more effective in targeting and reaching the customer and give you real-time information back. . . . It’s basically everything you’ve been able to do on the Internet [with advertising] . . . is now going to be also available on television.⁷⁰

Cablevision is in the process of having its proposed acquisition by Netherlands-based Altice reviewed. A key feature of the deal is to take advantage of Cablevision’s “triple play subscribers—phone, TV and Internet,” which make up 65 percent of the company’s subscriber base.⁷¹ As a recent industry report makes clear, “Cablevision has rich sources of data to help advertisers find their target audiences. Cablevision can enrich its data with an array of attributes that an advertiser can choose from, going way beyond age and gender to households that rent, tech savvy households, households with pets and so on. Advertisers can introduce their own customer information to the process of building target audiences.”⁷² TAPP allows marketers to target their customers by “ethnic group” (“African American, Caribbean/Non-Hispanic, Central Asian, Eastern Europe, etc.”);

⁶⁹ Quoted in Liyakasa, “Cablevision Says Audience Addressability Will Trump Cookies And Proxies.”

⁷⁰ Quoted in Daisy Whitney, “Cablevision Finds Success with Census-Level, Impression-Based Ads,” Beet.TV, 16 June 2015, <http://www.beet.tv/2015/06/kristindolan.html> While Cablevision boasts that TAPP “brings unprecedented access” to its millions of set-top box data, it also claims that this information is aggregated and de-identified census-level audience tuning data. Such claims of anonymity are questionable, however, in terms of the practical impact on consumers in particular, as Cablevision targets specific households regardless of whether or not names and addresses are involved.

⁷¹ John Eggerton, “Altice Files Cablevision Deal With FCC,” *Multichannel News*, 15 Oct. 2015, <http://www.multichannel.com/news/fcc/altice-files-cablevision-deal-fcc/394600>.

⁷² John Moulding, “Cablevision Works Towards Automation For Programmatic Linear TV,” Videonet, 6 Nov. 2014, <http://www.v-net.tv/cablevision-works-towards-automation-for-programmatic-linear-tv>.

their education (“less than High School, High School, some college, etc.”); “dwelling type” (“single family, multi-family, marginal-multi-family”); whether they rent or own; language spoken in the household; political affiliation; auto ownership and more.⁷³ “With just a few jabs at an iPad screen, the TAPP interface allows buyers to target customers in specific high-density zip codes throughout the New York DMA Buyers may select from a menu of 250 expanded demo attributions (age, sex, education, income, occupation, languages spoken, etc.) and then tick off one or more purchase-intent attributes organized by verticals such as travel, financial services and auto. ‘TAPP is basically the programmatic platform for audience-based ad campaigns,’ said Ben Tatta, president of Cablevision Media Sales.”⁷⁴

According to Ben Tatta, “We are now defining audiences in our customer’s terms, which means an automotive manufacturer can use its own customer data to message existing SUV owning households instead of those interested in sports cars, and insurance companies can target separate audiences for renters and home owners.”⁷⁵ “Not only is every impression on the Cablevision network identified (via STB tuning) but it is also authenticated, in terms of the viewer segment. In the online world the audience attributes are inferred by cookies,” but as Tatta points out, “There is no need to decipher cookies.”⁷⁶

Tatta also sheds light on Cablevision’s strong commitment to programmatic TV, “the automation for the buying of audience-based media. We translate that into impressions rather than spots. The big changes, from our perspective, are moving from spots sold on a GRP [gross rating point] basis to impressions sold on a CPM [cost per 1,000 impressions] basis, and expressing inventory in terms of impressions and providing an automated method for buying audiences.”⁷⁷ Concerning Cablevision’s TAPP system, which the company tested with “three of the top agencies—GroupM, Starcom [MediaVest Group] and Horizon [Media]”—Tatta noted that it also incorporates

Total Audience Data, which is our census-level audience data service that we provide to advertisers as well as programmers that want to get real deep insight

⁷³ Namakula Mu, “Cablevision ‘Tapp,’” Vimeo, <https://vimeo.com/144146415>.

⁷⁴ Anthony Crupi, “Cablevision ‘TAPPS’ Into the Power of Addressable Advertising,” *Ad Age*, 30 Apr. 2015, <http://adage.com/article/media/cablevision-tapps-power-addressable-advertising/298339/>. Among the companies using Cablevision’s new TAPP system is ESPN (and its parent company, Disney), which claimed that “[t]he comprehensive consumer insight from this collaboration will enable us to develop a multiplatform model that works on a national scale and ushers in a new chapter in the data and effectiveness story for our advertisers.” Jim O’Neill, “ESPN Signs On for a Swing with Cablevision’s New Addressable Ad Product,” Videomind, 13 May 2015, <http://www.ooyala.com/videomind/blog/espn-signs-swing-cablevision-s-new-addressable-ad>.

⁷⁵ Quoted in Moulding, “Cablevision Works Towards Automation For Programmatic Linear TV.”

⁷⁶ Moulding, “Cablevision Works Towards Automation For Programmatic Linear TV.”

⁷⁷ Quoted in Jeff Baumgartner, “Cablevision Makes an Impression,” *Multichannel News*, 29 June 2015, <http://www.multichannel.com/cablevision-makes-impression/391760>.

into audience measurement. This basically is a platform that allows the buy side, the agencies, to get access to that data as well as the inventory. In essence, they can plan a very granularly targeted campaign. For instance, if an auto manufacturer is targeting inmarket buyers for an SUV, it can plug into those parameters and get a sense of how many households meet those criteria within a footprint. If their desire was to buy on an impression basis, they get to plug in what their impression goals are, what their target CPM is, and it will generate a schedule that will support both their impressions as well as their CPM targets. It's nearing what has been done on the Web; the difference is we're doing it with television inventory, which is in finite supply ...⁷⁸

Oren Harveno, CEO of video ad tech vendor Eyeview, explains how his company has worked with Cablevision to target individual households: "We can use the data we know from the cookie of an individual that visited a site or ... data of someone who usually buys DIY products at a retailer ... [W]e can buy that individual household on TV and also serve them an ad that makes sense for them on TV."⁷⁹

Among Cablevision's DDTV advertising partners is ad giant WPP's interactive TV unit MODI Media. "We're starting to see the data come together where we can accurately define an appropriate household and message to them at scale," notes Modi present

⁷⁸ "By buying targeted impressions," Tatta added, "you eliminate a significant amount of waste. Depending on the type of audience an advertiser is looking for, historically spots were purchased based on age and gender alone. One of the biggest developments with impression-based buying is that those impressions can be defined in very granular terms that are more relevant to the client." Quoted in Jeff Baumgartner, "Cablevision Makes an Impression."

⁷⁹ Quoted in Robert Andrews, "Eyeview Offers Addressable TV Ads with Cablevision, DISH Inventory & Programmatic TV w/ Clypd and WideOrbit," Beet.TV, 18 Oct. 2015, <http://www.beet.tv/2015/10/eyevieworen.html>. Eyeview makes extensive use of data in its targeted ad campaigns. Its VideoIQ data management system combines CRM (customer relationship management) data, purchase activity, demographics and psychographics, website activity, and TV watching behavior for a three-pronged approach to ad targeting:

- ONBOARD
Easily onboard consumer knowledge and business intelligence from 1st and 3rd party sources
- SEGMENT
Utilize pre-defined segments and create custom audiences based on campaign performance
- ANALYZE
Analyze performance across consumer segments and store locations to optimize campaigns for the best results

Eyeview, "VideoIQ," <http://www.eyevewdigital.com/dpo/>.

Michael Bologna.⁸⁰ Cablevision's TAAP "can now match cable audiences to a third-party data set in minutes."⁸¹

A new Cablevision patent filing promises not only to streamline the TV ad-sales process through advanced programmatic technology, but also to move the company much closer to granular, personalized TV advertising. "In a move aimed at making the buying and selling of TV spots more like Internet advertising, Cablevision has developed a programatic [sic] ad-sales system that lets media buyers submit offers for available inventory. 'While Internet-based advertising has made progress in incorporating programmatic methods of audience discovery and targeted marketing, television

⁸⁰ Quoted in Kelly Liyakasa, "Modi's Bologna: Behind GroupM's New Addressable TV Unit," AdExchanger, 6 Jan. 2014, <http://adexchanger.com/agencies/modis-bologna-behind-groupms-new-addressable-tv-unit/>.

⁸¹ Zach Rodgers, "TV 2.0 Moves From Concept To Reality At Cannes," AdExchanger, 25 June 2015, <http://adexchanger.com/ad-exchange-news/tv-2-0-moves-from-concept-to-reality-at-cannes/>. See also "Cablevision and Modi Media Forge Long-term Partnership on Addressable TV," 2 Dec. 2015, <http://www.groupm.com/news/press-releases/cablevision-and-modi-media-forge-long-term-partnership-addressable-tv>. Modi Media specializes in addressable TV "the ability to send a TV commercial to a specific household based on a brand's actual target profile," which can involve "income, advanced demography, and purchase behavior, among others. Ads are served only to the homes that fit the specified target criteria"; hyper-local TV ("the ability to insert a TV commercial directly to a specific zone or zip code based on geographic skews, sales data, trading radius, etc. ... [which] helps focus clients' TV advertising in highly concentrated local neighborhoods without having to buy an entire market, thereby reducing waste"); and interactive TV (which "enables advertisers to engage consumers more deeply with interactive content and promotions, using TV commercials as a jumping off point," such as "dedicated advertiser channels, commercial overlays for lead generation, smart TV applications and e-commerce"). "GroupM Launches New Advanced Television Unit," 6 Jan. 2014, <http://www.wpp.com/wpp/press/2014/jan/06/groupm-launches-new-advanced-television-unit/>. Paul Haddad, senior vice president and general manager, advanced data analytics, Cablevision Media Sales, notes that "There are no technical or operational hurdles left today for implementing census level measurement in near real-time. Any excuses will be short lived as marketers mandate accurate and accountable measurement of true viewership and of advertising "across mediums" (*linear, time shifted, and on demand*). When added to the ability of creating audience segments, this type of viewership data will accurately measure reach and frequency 'by segment,' impressions 'by segment,' and—most importantly—measure conversion rates on the back end 'by segment.' This pillar becomes a critical component for marketers to determine their campaign parameters before embarking on analyzing inventory availability and optimal pricing as they evolve to programmatic buying." With regard to inventory data, Haddad explained that "Once a segment is created (*e.g., international travelers*) and its corresponding viewership is analyzed and determined (*e.g., affinity for these 150 programs and 65 networks*), the ability to purchase optimized impressions (*linear or addressable*) will be dependent on the reliability of the information of the underlying inventory; hence the need for near real-time access to inventory data. Anything shorter than near real-time information will be disruptive and cause confusion, costly over/under selling of impressions and definite margin losses to both the buyers and sellers." Paul Haddad, "Guest Blog: The Four Pillars of Data for Programmatic TV Advertising," *Broadcasting & Cable*, 1 Apr. 2015, <http://www.broadcastingcable.com/blog/currency/guest-blog-four-pillars-data-programmatic-tv-advertising/139309>.

advertising has additional challenges that complicates adoption of a programmatic model,' Cablevision states in a patent application published [in October 2015]. 'Accordingly, it would be advantageous to provide a mechanism for the programmatic buying and selling of television advertisements.' Cablevision Media Sales SVP of Technology Tom Donohue is named as inventor on the patent application, titled, 'Programatic Buying and Selling of Television Advertising.'"⁸²

Leveraging granular data and precise details of household viewing behavior, and onboarding third-party data covering other intimate details of consumer's lives, Cablevision is able to analyze and target specific individuals with video advertising across a range of screens. "This set-top box level targeting lets marketers target customers that fit particular trends, profiles, demographics and attributes, and they can also pair the Cablevision data with their own or third-party data" Illustrating how ISPs provide advertisers the ability to easily access and use a customer's information without the knowledge and control of that consumer, Cablevision has "created a tool we are giving [ad agencies the ability to] access all the information and put together custom schedules on their iPad ... in a couple a minute turn-around."⁸³

⁸² Steve Donohue, "Cablevision Pursues Programmatic Ad Sales," The Donohue Report, 8 Oct. 2015, <http://www.donohuereport.com/cablevision-pursues-programmatic-ad-sales/>. "Abstract: Disclosed herein are system, method, and computer program product embodiments for the programmatic buying and selling television advertisement. An embodiment operates by receiving a request for an available advertising segment inventory meeting one or more criteria. The system transmits to a buyer system available advertising segment inventory meeting the criteria, and receives an offer for the advertising segment including an offer price and a desired date range. The system then performs a comparative analysis of the order with one or more additional received offers for the advertising segment and transmits an offer acceptance notification based on the analysis." Donohue, "Cablevision Pursues Programmatic Ad Sales." This is not Cablevision's only patent breakthrough in the advanced advertising arena. On 30 June 2015, the company was granted patent No. 9,071,370 for a "System and Method for Set Top Box Viewing Data," which covers "'critical aspects' of the cable operator's system for capturing, synthesizing, and running analytics against viewing data." Jeff Baumgartner, "Cablevision Scores Set-Top Data Patent," *Multichannel News*, 20 July 2015, <http://www.multichannel.com/news/technology/cablevision-scores-set-top-data-patent/392332>.

⁸³ Whitney, "Cablevision Finds Success with Census-Level, Impression-Based Ads."

Charter Communications

*“Young and old, Americans are spending more hours of the day on screens than ever before. Good. Because with Spectrum Reach, those TVs, tablets, computers, and smart phones become your everywhere, all-the-time multiscreen advertising arsenal.”*⁸⁴
—Spectrum Reach

Charter Communications offers a range of multi-platform “hyper” targeting services, including for television and the Internet.⁸⁵ Its Spectrum Reach division (formerly Charter Media) helps “businesses find their perfect customers through targeted, integrated advertising and promotional solutions on national cable networks, online, and at events,” including through data gathered for lead generation.⁸⁶ “Charter features data-driven advertising services across a variety of platforms,” promising to “target customers on every screen” and that ad content “airs before the content requested by the viewer.”⁸⁷

⁸⁴ Spectrum Reach, “Media,” <https://spectrumreach.com/results/client-solutions/media>.

⁸⁵ “Spectrum Reach,” Linked In, <https://www.linkedin.com/company/charter-media>; <https://spectrumreach.com/results/customer-journey>.

⁸⁶ Spectrum Reach, <http://www.chartermedia.com>. See also, “Charter Media Is Now Spectrum Reach | EIGHT HOURS,” Vimeo, <https://vimeo.com/126495946>; “The New Visionary Customer—Phillip Aimé,” YouTube, 17 Aug. 2015, https://www.youtube.com/watch?v=eo_tijhBVkU; Spectrum Reach, “Automotive,” <https://spectrumreach.com/results/client-solutions/automotive>.

⁸⁷ Spectrum Reach, “Spectrum Reach Commercials,” <http://chartermedia.com/what-we-do/spectrum-reach-commercials>. Charter describes its multi-screen approach as follows:

- On Air: television advertising that is targeted, engaging and efficient for businesses of all sizes. In partnership with you, we craft messages that speak directly to your customers’ desires and interests while building awareness of your product or service.
- Digital Ad Network: In today’s multi-screen world, connecting your business to the right customers can be more challenging than ever With the ability to reach your customers wherever they are, viewing whatever they like, the Charter Digital Ad Network synchronizes your TV and online advertising. This combination makes both your television and online ad campaigns more focused, more efficient and more effective.
- Online: Charter.net offers an inspiring, interactive environment for consumers to access information about products, check e-mail and explore the latest in media, technology and entertainment. Advertising on Charter.net connects advertisers with local customers 24/7 who return often and spend more time at Charter.net – the place for advertisers to gain an immediate awareness in an uncluttered environment.
- Mobile: A fresh, dynamic solution to engaging customers, mobile marketing creates a personal relationship with your customers by offering them instant opportunities on their mobile device. Timely and personal, mobile marketing targets relevant consumers and builds an exclusive database of customers for advertisers to remarket to again and again.
- On Demand: Charter OnDemand provides advertisers a ground-breaking opportunity to speak directly to interested consumers with an unlimited amount of compelling, informative and entertaining content. Charter OnDemand allows you to REACH the right people with content that creates RELEVANCY and delivers your message through direct ENGAGEMENT with the consumer.

Spectrum Reach, the company declares, “applies insightful research to understand consumer behavior and build targeted, multi-screen media plans personalized for each customer.” It offers “eight solutions,” including “targeted TV, targeted devices, targeted leads, and targeted visits.”⁸⁸ For example, using its various customer data resources, Charter delivers targeted data-driven marketing on the “small screen” through its “targeted devices” offering, placing ads “on all the devices your customers use and on the shows your customers watch.”⁸⁹ Spectrum Reach also offers its ad clients access to dashboards so they can monitor in near-real time the results of their targeting campaigns “across every screen, every device, no matter where they are.” It also provide “trackable emails” and “trackable phone calls” to ad clients such as auto dealers.⁹⁰

Charter is also working with data broker Allant (now owned by Acxiom) for expanded and enhanced integration of third-party data for even more precise targeting. “With accurate measurement (who is a customer and who is a prospect) and identity resolution (what are the facts that I know about them) we create a framework for the CMO to make sound investment decisions,” Allant promises its clients.⁹¹ Charter’s work with Zodiac Interactive is similarly designed to sharpen its ad-targeting accuracy down to the household level, using Zodiac’s full PowerUp product suite, including a set-top box software stack and a cloud-based management system. “Zodiac’s PowerUp AMS manages Charter’s multitude of devices, distributing everything from electronic program-guide data, audience data collection, caller ID info, and parental control settings. The

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- Interactive Television: Charter Interactive TV brings your customers to the edge of their seat by engaging them in the actual programming. Through Interactive TV your customers don’t simply watch, they participate. They’ll vote on questions posed while the action’s still going on, take part in on-screen polls, request more information from you, or go directly to a custom microsite to learn more on their own.

Spectrum Reach, “Advertising Platforms,” <http://chartermedia.com/advertising-platforms>.

⁸⁸ Davonna Dangerfield, “New Dashboard Provides Up-to-the-Minute Campaign Results,” LinkedIn, 1 Dec. 2015, <https://www.linkedin.com/pulse/new-dashboard-provides-up-to-the-minute-campaign-davonna-dangerfield?trk=prof-post>.

⁸⁹ Spectrum Reach, “Spectrum Reach Solutions: PreRoll,” <https://spectrumreach.com/preroll>.

⁹⁰ Spectrum Reach offers its ad clients access to dashboards so they can monitor in near-real time the results of their targeting campaigns “across every screen, every device, no matter where they are.”

⁹¹ Allant, “Digital Advertising: Advanced Digital Insight,” <http://www.allantgroup.com/digital-adi.html>. See also Philip Duddy, “Advanced TV Advertising Overview Series, Part 1: Assessing the Pros and Cons,” <http://www.allantgroup.com/blog/advanced-tv-advertising-overview-series-part-1-assessing-the-pros-and-cons>; and Diane Leung, “Advanced TV Advertising Overview Series, Part 2: Three Key Differences between Traditional and Advanced TV Metrics,” <http://www.allantgroup.com/blog/advanced-tv-advertising-overview-series-part-2-three-key-differences-between-traditional-and-advance>.

system is also set up to provide full, remote connectivity to ‘unmanaged’ devices such as retail over-the-top boxes.”⁹²

Charter is also a joint owner (with Arris Group) of cloud TV company ActiveVideo, “the developer of CloudTV™, the only cloud-based software platform enabling service providers, content aggregators, and consumer electronic (CE) manufacturers to rapidly deploy new services by virtualizing consumer premises equipment (CPE) functions in the

⁹² Jeff Bumgartner, “Zodiac Interactive Stacks Up at Charter,” <http://www.zodiac.tv/zodiac-interactive-stacks-up-at-charter/>. Additionally, PowerUp AMS brings the worlds of cable and Internet video even closer, enabling “video service providers to unify and integrate Web, mobile, game consoles, and managed devices with service providers and third-party services and Internet applications. ... AMS Solution Adapters leverage core server functionality to deliver use-case specific capabilities. Examples include ...

- Social Media Integration
- Connecting to MSO Services (e.g., Billing)
- Connecting to Third-Party Services
- Comprehensive Monitoring
- Advanced Advertising...

“Pathway to New Apps

“Incorporate tweets, Facebook updates, RSS feeds, broadcast “walled garden” content, and any other applications able to be invoked by addressable device messages.” Zodiac Interactive, “PowerUp AMS: Bringing It All Together,” <http://www.zodiac.tv/power-up-server-solutions/powerup-ams/>. See also Zodiac Interactive, “PowerUp AMS Use Cases,” <http://www.zodiac.tv/power-up-server-solutions/ams-applications/>. Bringing the worlds of data driven TV and the Internet still closer together, “Zodiac Interactive’s Advanced Targeted Advertising solution has the capability to provide features beyond legacy limitations.

With PowerUp AMS and PowerUp Targeted Advertising Applications including EBIF user agent, the ability exists to monetize a technology platform with the benefit of reusable core technology and modular extensions for desired functions:

- Telescoping
- Request for information (RFI)
- Data collection
- TVCallMe
- Customer targeting (geographic, demographic, filters)
- Unbound applications

The solution’s key elements can be integrated with existing platform and supports SCTE-130 standards, which allows RFI, telescoping and geo-targeting to increase revenue opportunities as well as richer user experiences. A use case example that demonstrates the strength of the solution is an advertising application that allows an RFI request to provide a social media experience related to the product, such as reviews and comments on the product and special deals. And with Zodiac’s patent-pending TVCallMe application, an automatic phone call between advertiser and consumer can be initiated for information and/or ordering.

Zodiac Interactive, “Advanced Targeted Advertising,” <http://www.zodiac.tv/power-up-server-solutions/advanced-targeted-advertising-2/>.

cloud. CloudTV enables the delivery of next-gen user interfaces, online content, and interactive advertising for TV to millions of set-tops and connected devices.”⁹³ Additionally, Charter has entered into a strategic agreement with Cisco for set-top boxes, through which the latter “will supply key products in support of Charter’s breakthrough next-generation video solution.”⁹⁴ Charter Communication’s bid for Time Warner Cable

⁹³ “ARRIS, Charter Acquire ActiveVideo® Through New Joint Venture,” 14 Apr. 2015, <http://ir.arris.com/phoenix.zhtml?c=87823&p=irol-newsArticle&ID=2034729>. Charter’s plan to move toward a cloud-based approach with ActiveVideo’s technology “will allow the MSO to offer its new Spectrum UI and new apps across its footprint to both new IP-capable, such as its emerging Worldbox, as well as to legacy QAM [quadrature amplitude modulation]-based boxes that don’t speak IP.” Jeff Bumgartner, “Moffett: Charter’s Cloudy Video Future Is Bright,” *Multichannel News*, 7 Dec. 2015, <http://www.multichannel.com/news/content/moffett-charter-s-cloudy-video-future-bright/395765>. “ActiveVideo is about to do for interactive advertising what it has already done for user interfaces and video applications – give cable operators and other service providers the ability to scale those products to their entire base of IP-capable and older QAM-locked set-tops, rather than just to a smaller subset of new devices.” Jeff Bumgartner, “ActiveVideo Eyes Scale With Interactive Ad Platform,” *Multichannel News*, 6 Jan. 2014, <http://www.multichannel.com/news/content/activevideo-eyes-scale-interactive-ad-platform/356586>.

⁹⁴ “Charter will offer both an HD only and an HD-DVR ‘Worldbox’ featuring dual IP/QAM capabilities, configurable up to 16 tuners, a DOCSIS 3.0 cable modem, 1 Gig of RAM, high-powered USB to enable future applications, and a terabyte of storage on the HD-DVR. Charter expects to launch its new fully featured cloud based user interface, Spectrum Guide on Worldboxes, as well as on legacy boxes currently deployed within the Charter footprint. The Spectrum Guide features intuitive search and discovery capabilities with attractive graphics and TV and movie poster art that provides customers an enhanced state-of-the-art experience.” “Charter and Cisco Enter Agreement in Support of Charter’s Breakthrough Next-Gen Video Solution,” 6 Jan. 2015, <http://newsroom.cisco.com/press-release-content?articleId=1570038>. Cisco’s Videoscape TV Addressable Advertising suite sends “marketing messages that are based on subscribers’ demographic profile, location, and other criteria. ... Cisco Videoscape TV Addressable Advertising draws on granular subscriber information to help you bring the right advertisements to the right viewers. Using set-top box measurement data and DVR hard-disk space, this solution helps you personalize the viewer experience. Cisco, “Cisco Universal Small Cell 5310,” <http://www.cisco.com/c/en/us/products/video/videoscape-tv-addressable-advertising/index.html>. Cisco’s work on data-driven advanced advertising includes helping Sky in the UK launch its “SkyAdsmart” system that includes the following features:

- Sophisticated ad-targeting engine that classifies viewers according to 90 combinable audience attributes
- First-of-its-kind viewing measurement capability that can measure advertising exposure across 500,000 subscribers, encompassing 40 million viewing events a day (for example, every time a viewer changes channels, pauses, rewinds, etc.)
- Mechanisms to download Sky AdSmart software and advertisements to millions of Sky+ HD STBs without disruption to viewers, converting deployed hardware to dynamic ad servers without the need to replace customer hardware
- Aggregation of third-party demographic data with Sky IQ, Sky’s data analysis division...

“Sky AdSmart provides an efficient, automated platform to deliver highly targeted advertising to Sky TV subscribers. Drawing on information from Sky TV and Experian, the system creates granular profiles of subscriber households. Households are associated with 90 combinable

and its proposed acquisition of Bright House Networks will make the company an even more potent force in its use of data for targeting across platforms.⁹⁵

attributes according to region and metropolitan area, household composition (including gender and life stage of the subscriber, whether the subscriber has children, children's ages, etc.), and measurements of financial outlook, lifestyle and affluence Based on the subscriber's profile, Sky AdSmart pre-positions up to 200 targeted ads on the viewer's STB. The system automatically selects the most relevant ad to serve based on the content and time of day, drawing on metadata to help ensure that it complies with all regulatory and policy rules to deliver a particular ad at a specific time. The system also provides intelligence to ensure a better user experience, for example, allowing advertisers to define exactly how often a viewer sees an ad, and how many times an ad will run in a given timeframe. Furthermore, AdSmart only charges advertisers when at least 75 percent of the ad is viewed—compared to the online commercial model, where advertisers are charged even if just a single second or frame of their ad plays." Cisco, "Sky Customer Case Study," <http://www.cisco.com/c/en/us/solutions/collateral/service-provider/videoscape/case-study-c36-731847.html>. A glimpse into Charter's targeted-TV-advertising aspirations is available in the company's recent hiring of 30-year ad-industry veteran David Kline as executive vice president, president of media sales. In Kline's own words, "Advertisers are asking for more and better ways to enhance their sizable investment in television ads. Our goal is to offer advertisers data-driven, better targeted ads that, in some cases, subscribers will be able to interact with. The advanced services we will make available in our markets will distinguish Charter as the advertising platform of choice." "David Kline Joins Charter as Executive Vice President, President of Media Sales," 5 Oct. 2015, <http://www.prnewswire.com/news-releases/david-kline-joins-charter-as-executive-vice-president-president-of-media-sales-300153979.html>.

⁹⁵ "Charter Communications to Merge with Time Warner Cable and Acquire Bright House Networks," 26 May 2015, <http://www.prnewswire.com/news-releases/charter-communications-to-merge-with-time-warner-cable-and-acquire-bright-house-networks-300088457.html>.

Comcast

Comcast's "new advertising platform ... provides real-time targeted ads ... a cloudbased delivery platform that will move data flows into the hundreds of terabytes of data daily" and can "query a massive data store in real time to fine tune the ad delivery system."
—MapR⁹⁶

Incorporating both Comcast Cable and NBCUniversal, the Comcast Corporation is actively involved in the race to build advanced data-collection technologies into broadband networks and multi-screen video systems. Through its "Spotlight" advertising service, it provides "multi-screen" targeting that includes in-home as well as mobile devices.⁹⁷ It offers "select" advertisers the ability to use programmatic data to target "Comcast's 20 million broadband subscribers with scale and precision" via its XFINITY.com and xfinityTV.com sites.⁹⁸

In addition to its own cutting-edge research and development efforts, Comcast has also acquired a number of leading advanced advertising and data-targeting companies (including programmatic TV specialist Visible World in June 2015 and interactive ad service provider FreeWheel in March 2014, discussed further below).⁹⁹ These acquisitions build upon on Comcast's growing use of consumer data for online targeting, including through its Spotlight advertising division. Spotlight, which reaches more than 35 million households with television service and over 20 million with broadband Internet service, already features interactive and targeted advertising that "precisely segment[s] audiences based on demographic, psychographic and geographic criteria."¹⁰⁰

⁹⁶ MapR, "Comcast Uses MapR for New Advertising Platform That Provides Real-Time Targeted Ads," <https://www.mapr.com/resources/comcast-uses-mapr-new-advertising-platform-provides-real-time-targeted-ads>.

⁹⁷ Comcast Spotlight, "Ad Solutions," <http://www.comcastspotlight.com/ad-solutions/overview>.

⁹⁸ Rubicon Project, "Comcast Spotlight Selects Rubicon Project As Digital Advertising Automation Platform For Private Exchange," 3 June 2014, <http://rubiconproject.com/2014-press-releases/comcast-spotlight-selects-rubicon-project-digital-advertising-automation-platform-private-exchange/>.

⁹⁹ Seth Haberman, "The Next Step for Visible World: Joining One of the Most Innovative Media and Technology Companies in the Country," Visible World Blog, 4 June 2015, <http://www.visibleworld.com/blog/the-next-step-for-visible-world-joining-one-of-the-most-innovative-media-and-technology-companies-in-the-country/>; Ryan Lawler, "Comcast Is Acquiring Video Ad Company FreeWheel For \$320 Million," TechCrunch, 1 Mar. 2014, <http://techcrunch.com/2014/03/01/comcast-freewheel/>; Visible World, "About Us," <http://www.visibleworld.com/about/>.

¹⁰⁰ Comcast, "Comcast Spotlight," http://spotlightupload.s3.amazonaws.com/Comcast_Spotlight_2015_Media_Kit.pdf. Spotlight features both multiscreen strategies and customized advertising through its Adtag and Adcopy products. Comcast, "Comcast Spotlight." These efforts are driven, moreover, by Big Data insights, both quantitative ("from sources like Nielsen, comScore and Kantar [that] provide a precise analysis of media use") and qualitative ("from sources like MRI, Simmons, Scarborough and Bluefin [that] provide detailed aggregate information about consumers, geographies and

Comcast has also expanded its own programmatic advertising capabilities through alliances with major digital data-targeting companies. Its NBCU subsidiary's "data-enabled targeting" platform, offers "programmatic access ... across our entire portfolio."¹⁰¹ Comcast is able to harvest "terabytes of unstructured data" from the set-top boxes it controls, including homes that have them in "multiple rooms." These data are then "enriched by demographics" using an array of Big-Data processing so they can be "more meaningful to advertisers," including those targeting via "Comcast's IP-based systems." Through its work with MapReduce Comcast can "query a massive data store in real time to fine tune the ad delivery system." It is also able "to run lightning fast real-time analytics on large, changing datasets," such on its "Xfinity personalization platform," to generate insights about its customers (including for making "recommendations").¹⁰² Its "Comcast Metadata and Products and Search Services

social media activity"), as well as Comcast's own extensive audience analytics. Comcast, "Comcast Spotlight." See also Comcast, "Comcast Uses MapR for New Advertising Platform That Provides Real-Time Targeted Ads," https://www.mapr.com/sites/default/files/mapr_case_study_comcast.pdf; Comcast Spotlight, "Audience Analytics," <http://www.comcastspotlight.com/advertising-solutions/advertising-analytics>. And with the growing popularity of its video on demand (VOD) services, Comcast now employs digital ad insertion (DAI) technology that allow "ads to be dynamically inserted into a VOD program at the beginning and the end of program segments." Comcast, "Dynamic Ad Insertion: Unlocking the Value of Video On Demand," <http://www.comcastspotlight.com/blog/Changing-the-Dynamics-of-On-Demand-Advertising>. Comcast is well poised for the future of interactive television as well. "In addition to DAI services for VOD available today," the company explains, "Comcast Wholesale is enabling DAI beyond the set-top box for the future. The new CableLabs 3.0 standard for metadata allows assets to have more than one offer (and corresponding license dates, guide categories and price points) during its lifetime. When combined with new metadata fields such as Original Air Date and Series ID, these enhancements will be able to support DAI on online platforms." Comcast Wholesale, "Questions about DAI? We Have Answers," <http://www.comcastwholesale.com/dynamic-ad-insertion-dai>. See also Comcast Spotlight, "Interactive Technologies," <http://www.comcastspotlight.com/advertising-solutions/interactive-technologies>; Comcast Spotlight, "Interactive Television (iTV)," <http://www.comcastspotlight.com/advertising-solutions/interactive-technologies/itv>; Comcast Spotlight, "I+ Cable Satellite Telco – Connected," <http://www.comcastspotlight.com/eyeballs>.

¹⁰¹ NBCUx, <https://together.nbcuni.com/nbcux/>. Through its ownership of leading Hispanic media platforms, it offers advanced targeting of Hispanics as well. Comcast, "Comcast Media 360 and Telemundo Introduce Geo-targeting Ad Platform," <http://corporate.comcast.com/news-information/news-feed/comcast-media-360-and-telemundo-introduce-unprecedented-geo-targeting-ad-platform>.

¹⁰² MapR, "Comcast Uses MapR for New Advertising Platform That Provides Real-Time Targeted Ads"; Hadoop Illuminated, "Chapter 10. Hadoop Use Cases and Case Studies: Comcast," http://hadoopilluminated.com/hadoop_illuminated/Hadoop_Use_Cases.html#d1575e2024; Lesia Myroshnichenko, "Real-Time Stream Processing Architecture with Hadoop and MemSQL," 15 Apr. 2015, Mysql Blog, <http://blog.memsql.com/real-time-stream-processing-with-hadoop/>; Sridhar Alla and Jan Neumann, "How Spark is Working Out at Comcast Scale," Strata + Hadoop

division (CoMPASS) is responsible for its “enterprise-wide cloud-based software platform which provides content navigation and discovery services that power Comcast’s customer-facing web, mobile and set top box applications.”¹⁰³

Since 2014, Comcast has worked with programmatic advertising company Rubicon Project to implement its “private” exchange that targets individual customers. It is using Rubicon’s Advertising Automation Cloud, which (at the time of the announcement) “processes 2.5 million queries per second and trillions of bids each month.”¹⁰⁴ Rubicon’s

World, 1 Oct. 2015, <http://conferences.oreilly.com/strata/big-data-conference-ny-2015/public/schedule/detail/43144>; “1st Workshop On Recommender Systems For TV and Online Video—RecSysTV 2014,” 27 May 2015, <http://videogeometry.com/>. See also the work of Comcast Labs involving “Big Data”: Comcast, “Research,” <http://dclabs.comcast.com/research/>; VideoGeometry, “Home Page of Jan Neumann,” <https://sites.google.com/site/videogeometry/>.

¹⁰³ Rick Rioboli, LinkedIn, <https://www.linkedin.com/in/rickrioboli>; Steve Donohue, “Comcast Forms CoMPASS Team to Develop Next Generation User Interfaces,” FierceCable, 23 Oct. 2012, <http://www.fiercecable.com/story/comcast-forms-compass-team-develop-next-generation-user-interfaces/2012-10-23>.

¹⁰⁴ “The technology platform is constantly self-optimizing based on the ability to analyze and learn from the vast volumes of data processed.” Rubicon Project, “Comcast Spotlight Selects Rubicon Project As Digital Advertising Automation Platform For Private Exchange.” Concerning its Rubicon alliance, one industry observer called it “a pivotal moment for Comcast. Digital advertisers for the first time could buy against 19 million subscribers across the desktop sites of Comcast’s Xfinity and Xfinity.TV brand. Although this does not yet include mobile programmatic sales, the cross-screen ‘TV Everywhere’ evolution will only propagate it.” Kelly Liyakasa, “How Comcast Could Upset The Programmatic TV Game,” Ad Exchanger, 23 June 2014, <http://adexchanger.com/digital-tv/how-comcast-could-upset-the-programmatic-tv-data-game/>. As Forrester Research’s Jim Nail added, “... assuming that they tie the cookie to the address of the subscribing household, they can do great audience targeting,” Nail stated.” Quoted in Kelly Liyakasa, “How Comcast Could Upset The Programmatic TV Game.” Through Rubicon, Comcast advertising clients also have access to Adobe’s new “self-service” technology, which “it claims is the industry’s most advanced programmatic ad platform for advertisers and media publishers leveraging fully integrated solutions in Adobe Marketing Cloud. The technology, which is part of Adobe Marketing Cloud and Adobe Media Optimizer, lets advertisers take direct control of automated ad buying for search, display and social media across ad exchanges and media networks. ... Adobe also announced its programmatic offering for media publishers, broadcasters and pay TV as a beta. Adobe Primetime offers media sellers the ability to sell video ad inventory across screens.” “Adobe Launches ‘Self-service’ Programmatic Advertising Platform,” Campaign, 17 Sept. 2015, <http://www.campaignlive.com/article/adobe-launches-self-service-programmatic-advertising-platform/1364547>.

What is Adobe Primetime?

It’s a multiscreen TV platform that helps broadcasters, cable networks and service providers create and monetize engaging and personalized TV and film experiences. Deliver TV Everywhere.

Give viewers the TV and film content they want anywhere, across 3.4 billion devices. ... Offer insights and results.

Insights from Adobe Marketing Cloud integrations allow media sellers to optimize campaign and ad delivery in real time. ...

Advertising Automation Cloud, “one of the largest cloud and Big Data computing systems in the world, leverages over 50,000 algorithms and analyzes billions of data points in real time” to buy and sell individuals to marketers. It conducts 18 billion transactions per week, makes “300 real-time data-driven decisions per transaction,” and “is constantly self-optimizing” as it analyzes our data. Comcast uses Rubicon’s platform to enable advertisers to “bid in real-time” to target people that access Xfinity.com and xfinityTV.com. Comcast Ventures, Comcast’s venture investment fund, includes the Rubicon Project in its extensive data-delivered ad targeting portfolio.¹⁰⁵

Comcast’s recently acquired Visible World “uses data from millions of enabled Smart TVs” for its Smart TV DNA™ targeting service.¹⁰⁶ Data for targeting include income, ethnicity, education level, what kind of car they have, products they buy, where they live, and is said to provide marketers with “high yield precision.” Visible World works with

Integrate with Adobe Marketing Cloud.

Adobe Analytics

Understand how your audience watches and engages with premium television, film and ad content.

Audience Manager

Enhance the value of your ad inventory by layering in your own audience data.

Adobe, “Adobe Primetime,” <http://www.adobe.com/sea/marketing-cloud/primetime-tv-platform.html>. The Rubicon/Adobe partnership permits Comcast to use data brokers such as Acxiom and others for targeting, and also cross-platform data integration and Acxiom-owned LiveRamp. Acxiom, “Audience Onboard for Facebook,” <http://www.acxiom.com/audience-onboard-facebook/>; LiveRamp, “Partners,” <http://liveramp.com/partners/>. Adobe, moreover, links with data broker Epsilon (which is also a partner of Comcast Spotlight). “Epsilon Partners with Adobe to Deliver Next-Generation Loyalty Platform,” 25 Mar. 2014, <http://www.adobe.com/news-room/pressreleases/201403/032514AdobeEpsilonPartnership.html>; Acxiom, “Partner Spotlight: Comcast Media 360,” <http://www.acxiom.com/partner-spotlight-comcast-media-360/>.

¹⁰⁵ Rubicon’s Advertising Automation Cloud, “one of the largest cloud and Big Data computing systems in the world, leverages over 50,000 algorithms and analyzes billions of data points in real time” to buy and sell individuals to marketers. It conducts 18 billion transactions per week, makes “300 real-time data-driven decisions per transaction,” and “is constantly self-optimizing” as it analyzes consumer data. Comcast uses Rubicon’s platform to enable advertisers to “bid in real-time” to target people that access Xfinity.com and xfinityTV.com. Comcast Ventures, “Our Portfolio: The Rubicon Project,” <http://www.comcastventures.com/portfolio/rubicon-project/>; Rubicon, “Automation Cloud,” <https://rubiconproject.com/automation-cloud/>; Rubicon, “Buyer Cloud,” <https://rubiconproject.com/buyer-cloud/>; Jack Norris, “Big Results from Big Data—The Comcast Spotlight and Rubicon Project New Business Partnership,” MapR Blog, 30 July 2014, <https://www.mapr.com/blog/big-results-big-data---comcast-spotlight-and-rubicon-project-new-business-partnership>.

¹⁰⁶ Wayne Friedman, “Comcast Buys Visible World, Expands Addressable TV Advertising,” Media Daily News, 4 June 2015, <http://www.mediapost.com/publications/article/251336/comcast-buys-visible-world-expands-addressable-tv.html>.

more than “300 advertisers, reaching approximately 80% of U.S. cable homes with an addressable footprint of 3 million homes.”¹⁰⁷

Through Visible World, Comcast now also controls AudienceXpress, a programmatic TV “advanced audience data” buying platform for advertisers. Its “data deals” with partners Nielsen, Nielsen Catalina, Rentrak (now comScore), Experian, and Neustar enable targeting campaigns to “optimize their programmatic TV campaigns in-flight ... using verified offline and online [behavioral] data” This data analysis includes “actual product purchasing behavior,” “credit card spend data,” and the multi-screen activities of consumers. Comcast’s AudienceExpress deal with Neustar, it explains, enables it clients “to tap into the same kind of online user data used by DSPs, agencies and trading desks to buy audiences over online programmatic exchanges.” As an AudienceXpress executive explained, “this partnership is an industry first. No one in the TV industry has ever combined online data with TV viewership data.”¹⁰⁸

Comcast’s FreeWheel, acquired in 2014, gives it extraordinary influence in how digital advertising works across many networks and services. FreeWheel, which claims to be “at the center of the premium video economy,” allows network operators and others to “gain unprecedented control and monetize ad experiences across all screens regardless of platform, device or rules with our rich selection of capabilities.” At the core of the company’s services for video advertising are programmatic data targeting capabilities. FreeWheel works with Google, Apple, Time Warner Cable, AOL, Adobe, and an array of

¹⁰⁷ Multiple versions of ads “to target different offers” and to “keep up with real-time developments” is one of the services it offers marketers. Seth Haberman, “The Next Step for Visible World: Joining One of the Most Innovative Media and Technology Companies in the Country,” Visible World Blog, 4 June 2015, <http://www.visibleworld.com/blog/the-next-step-for-visible-world-joining-one-of-the-most-innovative-media-and-technology-companies-in-the-country/>; Visible World, “Platforms & Products,” <http://www.visibleworld.com/platforms-products/>; Visible World, “Solutions: Marketers,” <http://www.visibleworld.com/targeted-tv-advertising-solutions/marketers/>; Visible World, “Resources: Videos,” <http://www.visibleworld.com/resources/videos/>; Visible World, “Solutions: Ad Sales,” <http://www.visibleworld.com/targeted-tv-advertising-solutions/ad-sales/>.

¹⁰⁸ Joe Mandese, “AudienceXpress Brings Product Purchasing, Online Behavior Data To TV Audience Targeting,” Media Post RealTime Daily, 13 Mar. 2014, <http://www.mediapost.com/publications/article/221357/audiencexpress-brings-product-purchasing-online-b.html>; “AudienceXpress and Neustar Announce Data Partnership to Bridge Gap Between Online and TV Ad Campaigns,” Market Wired, 14 Mar. 2014, <http://www.marketwired.com/press-release/audiencexpress-neustar-announce-data-partnership-bridge-gap-between-online-tv-ad-campaigns-nyse-nsr-1888850.htm>; AudienceXpress, “Media Kit,” <http://www.audiencexpress.com/media-kit/>; AudienceXpress, “Data,” <http://www.audiencexpress.com/data/>; Neustar, “Neustar PlatformOne: Precision Marketing for a Personalized Customer Experience,” <https://www.neustar.biz/marketing-solutions>; Pete Kluge, “Display Advertising Basics (DSPs, RTB, Ad Exchanges, DMPs), 19 May 2014,” <https://www.youtube.com/watch?v=61G72kb0F04>.

leading data-targeting companies—including Krux and the Oracle Marketing Cloud (BlueKai).¹⁰⁹

Comcast’s Venture arm includes investments in mobile/location targeting, social media marketing, the use of data for profiling, and online lead generation.¹¹⁰ Videology, for example, one the ad-tech companies in which Comcast has invested, uses data and “advanced decisioning technology” to target advertising to the online and digital video audience. Its “activation engine” combines layers of consumer and personal information, including through “cookie-syncs, brittle targeting, and PII matching for use across PCs, mobile devices, tablets and Connected TVs.” Videology has “15,000 audience segments” and 25 “data partners” that can be used when targeting an individual.¹¹¹ Data partners include Acxiom, Adobe, Oracle Marketing Cloud, Krux, LiveRamp, MasterCard Advisors, Neustar, TURN, and others.¹¹² Videology is now integrated into FreeWheel’s programmatic platform, “another step forward in bringing data-enabled transactions to the premium end of the TV market.”¹¹³

¹⁰⁹ FreeWheel, “Manage Your Advertising,” <http://freewheel.tv/platform/#manage-your-advertising>; FreeWheel, “Partners,” <http://freewheel.tv/partners/>; “FreeWheel’s FourFronts Programmatic Solution Being Offered by Discovery Communications,” BusinessWire, 15 Sept. 2015, <http://www.businesswire.com/news/home/20140915005934/en/FreeWheel%E2%80%99s-FourFronts-Programmatic-Solution-Offered-Discovery-Communications>; Kelly Liyakasa, “Comcast-FreeWheel Deal Underscores Collision Of TV, Digital Video Interests,” Ad Exchanger, 7 Mar. 2014, <http://adexchanger.com/digital-tv/comcast-freewheel-deal-underscores-collision-of-tv-digital-video-interests/>; Jack Rotherham, “Change is Good: 2015 FreeWheel Client Summit Recap,” <http://freewheel.tv/freewheel-views/change-is-good-2015-freewheel-client-summit-recap/>.

¹¹⁰ Videology CEO Scott Ferber shares Comcast’s basic approach to targeted DDTV advertising (“Simply said, we put the right ad in front of the right person at the right time in the right content across digitally-enabled screens”), as he describes his company’s basic objective: “We saw the need to bring the two worlds of linear TV and digital media together to leverage the best of both. This meant building a single platform that married the certainty of TV, with the precision of digital, with the ability to drive and measure offline ROI. At its core, our technology is about connecting the dots within the new video landscape. As we developed our solution, our thinking was shaped by four key truths: 1.) consumers were consuming more content on more screens, 2.) data was becoming the gold that everyone wanted to use for targeting and measurement, 3.) video was different than display advertising and spreading rapidly across screens, 4.) technology was truly the only scalable way to connect targeted audiences across devices.” Videology CEO Scott Ferber shares Comcast’s basic approach to targeted DDTV advertising (“Simply said, we put the right ad in front of the right person at the right time in the right content across digitally-enabled screens”), as he describes his company’s basic objective: “

¹¹¹ Videology, “Products: Activation Engine,” <http://www.videologygroup.com/products/audience-engine/>; Videology, “Solutions for Marketers,” <http://www.videologygroup.com/solutions/marketers/>.

¹¹² Videology, “Third Party Data Providers,” <http://www.videologygroup.com/third-party-data-partners/>.

¹¹³ Videology, “Videology Enters FreeWheel’s FourFronts Programmatic Pilot,” 25 Mar. 2015, <http://www.videologygroup.com/news-press/P20/videology-enters-freewheels-fourfronts->

Another recent Comcast acquisition similarly reflects Comcast's commitment to adopting IP-based technologies in an effort to sharpen the focus of its targeted TV advertising services. Comcast acquired "This Technology" in August 2015."¹¹⁴ The company's VEX

programmatic-pilot/#.VsoMaBj-BVo. Videology CEO Scott Ferber shares Comcast's basic approach to targeted DDTV advertising ("Simply said, we put the right ad in front of the right person at the right time in the right content across digitally-enabled screens"), as he describes his company's basic objective: "We saw the need to bring the two worlds of linear TV and digital media together to leverage the best of both. This meant building a single platform that married the certainty of TV, with the precision of digital, with the ability to drive and measure offline ROI. At its core, our technology is about connecting the dots within the new video landscape. As we developed our solution, our thinking was shaped by four key truths: 1.) consumers were consuming more content on more screens, 2.) data was becoming the gold that everyone wanted to use for targeting and measurement, 3.) video was different than display advertising and spreading rapidly across screens, 4.) technology was truly the only scalable way to connect targeted audiences across devices." Quoted in Comcast, "How Videology Connects the Dots Within the New Video Landscape," <http://corporate.comcast.com/news-information/news-feed/how-videology-connects-the-dots-within-the-new-video-landscape>. "[Matt] Strauss [Comcast chief of video services] noted that on-demand viewing is exploding, and that pay-TV companies are in a unique position to serve that explosive demand—and cash in on it. And a major element of that strategy revolves around advanced set-top boxes and new advertising systems such as dynamic ad insertion and programmatic marketplaces. Indeed, in television's most disrupted hour, pay-TV operators are in a prime position to not only control the broadband infrastructure that will transport the video of the future, but also to facilitate the advanced advertising schemes that will support it." "In terms of the data cable operators get, it's not an estimate based on a sampling, the way Nielsen's is, but rather a full accounting of every set top box owner's behavior—what they watched, how long they watched, and whether they changed channels on the commercial break," said Alan Wolk, a senior analyst for The Diffusion Group. ... Comcast, for example, is talking to Walt Disney Company's ESPN, Time Warner Inc.'s Turner Broadcasting and Discovery Communications about packaging the MSO's viewer data into 'dashboards' that could be used for the purpose of more targeted advertising. ... While they're figuring how to monetize their set-top data by giving programmers and brands new insights into how TV—and its ads—is being watched, cable operators are also using the information to create all-new TV advertising businesses." "From DAI to Programmatic: Why Advanced Advertising is Giving Pay-TV Operators a Reason to Stay in the Video Biz," *FierceCable*, 1 Dec. 2015, <http://www.fiercecable.com/special-reports/dai-programmatic-why-advanced-advertising-giving-pay-tv-operators-reason-st>.

¹¹⁴ "We've come a long way in a short time. When it comes to realizing the full capabilities of the products that This Technology has developed, this is just the beginning," said Jeff Sherwin, founder and CEO of This Technology, in a website message about the acquisition. Comcast plans to have This Technology work alongside the VIPER team, [Comcast Chief Technology Officer Tony] Werner said. A big part of the VIPER focus in LoDo is developing the interactive advertising technology that's becoming more important as traditional linear, live TV moves to IP video." Greg Avery, "Comcast will Fold Denver Technology Company into LoDo Tech Hub," *Denver Business Journal*, 26 Aug. 2015, http://www.bizjournals.com/denver/blog/boosters_bits/2015/08/comcast-buys-denver-technology-company.html. Even this seemingly minor acquisition portends major changes for Comcast's approach to video advertising—increasingly automated and drawing on more and

Manifest Manipulator enables the insertion of personalized content into network streams—including advertising messages tailored for specific individuals.¹¹⁵ The Trajectory Execution Platform automates the real-time exchange of content and data within the rapidly expanding “dynamic advertising ecosystem.”¹¹⁶

NBCUniversal

“We will use Comcast set-top box data to power” NBCU’s Audience Targeting Platform “We’ll marry viewer data and consumer data at scale.”

more consumer data—as well as to the larger broadband video ecosystem. This Technology’s mission statement is suggestive of this major shift:

Our goal is to provide infrastructure software to support dynamic ad insertion and alternate content delivery which is architected for efficiencies at both the end user and industry levels.

While end-to-end, vertically integrated solutions may make sense in some businesses, multiplatform dynamic advertising is executed by a relatively expansive ecosystem with many disparate and independent contributors – content providers, service providers, ad copy managers, ad sales managers, advanced data providers, and so on.

For this sort of environment, an overall architecture that provides flexibility, agility, and room for expansion is much more appropriate. ...

At the product level, we’ve created an execution platform which provides infrastructure software to assist in managing addressable, interactive, and dynamic advertising without the operational cost or bias of vertically integrated applications. Our complimentary metadata management system provides an independent, cross-platform solution for ad and content assets. And our interconnect software provides the fabric to allow independent systems, including both ours and third-party solutions, to optimally interact for real-time decision-making using industry standards.

This Technology, “Why This Technology,” <http://thistech.com/why-this-technology>.

¹¹⁵ “VEX enhances ABR [adaptive bit rate] content delivery by individually altering the stream to support dynamic advertising and alternate programs. VEX supports dynamic content substitution by first interpreting each session’s original manifest, then determining appropriate decisions, and finally providing a perfectly modified alternative manifest with seamless video splicing and the same dynamic control of video bit rates as the source ABR session. Our manifest manipulator encompasses the real-time or non-real-time manifest construction where an end user’s playback can be tailored based on policies, advertising opportunities, and/or content and alternate content events. The user, device, and network remain completely unaware of any changes.” This Technology, “VEX Manifest Manipulator,” <http://thistech.com/vex-manifest-manipulator>.

¹¹⁶ “The dynamic advertising ecosystem continues to expand as more roles, players, and requirements become available. Plus, there are multiple campaign managers and an ever-growing number of video platforms. Adding further complexity is the inability to shift one campaign manager to another video platform. The Trajectory Execution Platform connects any video infrastructure to any ad serving platform across digital cable and Internet video systems. As a result of this open architecture, you can insert dynamic advertisements in linear, time-shifted, and on-demand content in real time.” This Technology, “Trajectory Execution Platform,” <http://thistech.com/trajectory-dynamic-ad-insertion>.

—Linda Yaccarino, NBCU chairman of ad sales¹¹⁷

A subsidiary of Comcast Corporation, NBCUniversal launched NBCUx in September 2014, offering “our clients programmatic access to premium content across our entire portfolio combined with data-enabled targeting.” The NBCUx “private exchange” enables targeting across NBCU’s programming and content assets, including NBC Sports, Telemundo, Fandango, NBC News, and others.¹¹⁸ NBC is using “set-top box viewing data from several third party sources” and will also add its own “first-party” consumer information (from Fandango, for example). Earlier in 2014, NBCU and Comcast launched “NBCU+Powered by Comcast, a “suite of new advertising products designed to increase the effectiveness of media buys through customer segmentation, advanced analytics and targeting.”¹¹⁹ This service encourages the merger of a consumer’s information from a variety of external and internal sources. This service is known as NBCU’s “Audience Targeting Platform.”¹²⁰

¹¹⁷ Quoted in Jon Lafayette, “NBCU Gets Access to Comcast Data,” *Broadcasting & Cable*, 14 May 2015, <http://www.broadcastingcable.com/news/upfront-central/nbcu-gets-access-comcast-data/140906>.

¹¹⁸ “NBCUniversal Strengthens Programmatic Business with Launch of NBCUx,” 29 Sept. 2014, <https://www.nbcumv.com/news/nbcuniversal-strengthens-programmatic-business-launch-nbcux>; NBCUx, <https://together.nbcuni.com/nbcux/>. Krishan Bhatia, NBCU’s executive vice president for digital strategy and operations, explains the multi-screen rationale for the growth of programmatic sales. “Device fragmentation is enabling new use cases for content consumption,” he observes. “In the 18-49 year old demographic, anywhere between 10-20% of our shows are being consumed through digital platforms. When you look at even younger demos, that percentage exceeds 20% and in some cases, 30%. We expect fully that in the next 2-5 years, that will increase dramatically.” Quoted in Kelly Liyakasa, “NBCUniversal’s Evolving Media Empire Hinges on a Marriage of Data and Premium Content,” *Ad Exchanger*, 3 Nov. 2014, <http://adexchanger.com/digital-tv/nbcuniversals-evolving-media-empire-hinges-on-a-marriage-of-data-and-premium-content/>.

¹¹⁹ Comcast, “NBCU+ Powered by Comcast Delivers Suite of New Advertising Products,” 30 Jan. 2014, <http://corporate.comcast.com/news-information/news-feed/nbcu-powered-by-comcast-delivers-suite-of-new-advertising-products>; Tyler Loechner, “NBCUniversal Unveils Audience Targeting Platform For TV,” *Media Post RealTime Daily*, 15 Jan. 2015, <http://www.mediapost.com/publications/article/241829/nbcuniversal-unveils-audience-targeting-platform-f.html>.

¹²⁰ Jon Lafayette, “NBCU Gets Access to Comcast Data,” *Broadcasting & Cable*, 14 May 2015, <http://www.broadcastingcable.com/news/upfront-central/nbcu-gets-access-comcast-data/140906>; Kelly Liyakasa, “Programmatic Drives 10-15% Of NBCUniversal’s Total Digital Upfront Business,” *Ad Exchanger*, 29 Oct. 2015, <http://adexchanger.com/digital-tv/programmatic-drives-10-15-of-nbcuniversals-total-digital-upfront-business/>. NBCUx also works with Google and other data targeting companies. As NBCx explains in a job posting for a manager for its Open Exchange, one of the duties is “Own & manage relationship with ad network partners (primarily Google, PubMatic, potentially others) as they relate to Open Exchange.” “Job Detail for Manager, NBCUx—Open Exchange,” *Climber*, <http://jobs.climber.com/jobs/Media-Publishing/New-York-NY-10176-USA/Manager-NBCUx-Open-Exchange/128538423>.

Cox Communications

“Advertising on the Cox Digital Ad Network allows you to connect to the desirable Cox high-speed subscriber throughout their online experience ... with 100% geographic precision.”
—Cox Media promotional video¹²¹

The third-largest cable entertainment and broadband services provider in the country, Cox Communications offers cross-device and data-driven targeting, spanning TV, the Internet, and mobile (including social media, apps, etc.). The company’s targeting capabilities are precise down to the “ZIP + 4 level,” and uses data involving individuals’ “average household income, ethnicity, home ownership, education, marital status, children in household, age, types of insurance” as well as identifying the “type of online content they consume.” It is able to target ads on “tens of thousands of websites” and uses the “real-time location” of its subscribers for “geo-conquesting” and “geo-fencing” via their mobile phones.¹²² Through data partnerships and related online-targeting alliances and technologies, Cox is able to gather detailed information on its online customers.¹²³

Cox has made programmatic data targeting a key priority.¹²⁴ Last year it partnered with TubeMogul to become the nation’s first cable company to offer programmatic “cross-device video ad” targeting. An array of consumer data assets and sophisticated technologies are used in this local and regional video-advertising partnership.¹²⁵ Cox is

¹²¹ Cox Media, “Cox Digital Ad Network Solutions,” <http://www.coxmedia.com/products-and-services/online/cox-digital-ad-network-solutions.aspx>.

¹²² Cox Media, “Cox Digital Ad Network Solutions”; Tyler Loechner, “Real-Time With Cox Media’s Zeigler On ‘Programmatic TV,’” Media Post RealTime Daily RTBlog, 26 May 2015, <http://www.mediapost.com/publications/article/250566/real-time-with-cox-medias-zeigler-on-programmatic.html>; Cox Media, Mobile360,” <http://www.coxmediaproductguide.com/products/mobile360.aspx> ; Cox Media, “Digital VideoX,” <http://www.coxmediaproductguide.com/products/digital-videox.aspx>.

¹²³ Cox Media, “Products and Services: Digital VideoX,” <http://www.coxmedia.com/products-and-services/online/digital-videox.aspx>; Cox Media, “Product Guide,” <http://www.coxmediaproductguide.com/>.

¹²⁴ Cox Media, “Programmatic TV Buying,” <http://hub.coxmedia.com/h/c/174289-programmatic-tv-buying>.

¹²⁵ “Cox Media and TubeMogul Announce Partnership Spanning TV and Digital Video,” PR Newswire, 27 Feb. 2015, <http://www.prnewswire.com/news-releases/cox-media-and-tubemogul-announce-partnership-spanning-tv-and-digital-video-300042853.html>; TubeMogul, “Programmatic TV,” <https://www.tubemogul.com/programmatic-television/>; TubeMogul, “TubeMogul Software,” <https://www.tubemogul.com/tubemogul-software/>; Kevin Pamploma, “Cascading, Part 1: How Cascading Compares to MapReduce and Other Big Data Applications,” TubeMogul, 3 Feb. 2016, <https://www.tubemogul.com/engineering/how-cascading-compares-to-mapreduce-and-other-big-data-applications/>. “The company’s video advertising business employs Big Data analysis from ad serving, targeting, optimization and brand lift measurement.” Adam Rose, “Case Study: TubeMogul Delivers Big Data Insights at Enterprise Scale Using Qubole

also in a “private market” ad and “first and third party” data targeting partnership with MAGNA GLOBAL (IPG Mediabrands) using the AudienceXpress system (discussed above in the Comcast profile).¹²⁶ IPG’s data and targeting partnerships include Acxiom, Oracle Marketing Cloud (Datalogix), TURN, Nielsen, Polk, Google DoubleClick, Facebook, and Experian, among several others.¹²⁷

Cox’s Gamut division offers an “advanced programmatic solution” to advertisers, including at the community/local level, that uses “a wide-array of data and business intelligence tools including Experian, Comscore, Rhiza, MOAT, Theorem Analytics, and Civic Science.”¹²⁸ In 2014, Cox began working with INVIDI Technologies on a programmatic advertising trial. Invidi’s Advatar system of targeted television advertising “monetizes every subscriber in the long tail of cable television’s demographically rich networks.”¹²⁹

Videa, “a Cox-backed supply-side platform bringing automation and data-driven decision-making to broadcast television,” helps stations engage in greater data-oriented targeting. Videa’s approach to programmatic buying draws on both household data (e.g., geographical location, age, number of people in household, income, and homeowner or renter status) and shopping behavior (e.g., companies followed on social media, amount

Data Service,” <https://www.qubole.com/resources/case-study/case-study-tubemogul/>; Hartie Chang, “Crystal Clear Visibility,” 25 Jan. 2016, TubeMogul, <https://www.tubemogul.com/articles/crystal-clear-visibility/>; Jeff Fisher, “Riding Atop The Programmatic Wave,” TubeMogul, 30 Nov. 2015, <https://www.tubemogul.com/articles/riding-atop-the-programmatic-wave/>.

¹²⁶ AOL Real Estate, “Ad Buyers Can Target Cox Viewers In 2015 With AudienceXpress,” <http://realestate.aol.com/blog/videos/real-estate/518554376/>; “Cox Media, MAGNA GLOBAL and AudienceXpress to Launch First Private Programmatic TV Marketplace,” PR Newswire, 5 Dec. 2014, <http://www.prnewswire.com/news-releases/cox-media-magna-global-and-audienceexpress-to-launch-first-private-programmatic-tv-marketplace-300005396.html>; IPG Media Lab, “Programmatic,” <https://www.ipglab.com/tag/programmatic/>.

¹²⁷ Cadreon, “Partners,” <http://www.cadreon.com/partners/>; Cadreon, “Our Products,” <http://www.cadreon.com/products/advanced-tv/>.

¹²⁸ The knowledge it obtains on “consumer behaviors and attitudes, empowers us to provide a more vivid and complete understanding of how consumers think and what they do in a multichannel, multicultural world.” Gamut, “What We Do: Publishers,” <http://gamut.media/what-we-do/publishers/>; Gamut, “What We Do: Advertisers,” <http://gamut.media/what-we-do/advertisers/>.

¹²⁹ Invidi, “Advatar Targeted Television Advertising: Our Aim is True,” http://www.invidi.com/downloads/INVIDI_Advatar_Advertising.pdf. “INVIDI’s powerful suite of advanced tools enables operators to selectively target television viewers with the same pinpoint accuracy as direct mail and database marketing ... enhancing existing revenue streams and cultivating significant new revenue opportunities.” Invidi, <http://www.invidi.com>; “INVIDI and clypd Form Strategic TV Advertising Alliance,” 5 Sept. 2013, <http://clypd.com/invidi-and-clypd-form-strategic-tv-advertising-alliance/>; “Gracenote and INVIDI Team for Targeted TV Advertising System, Identifying Programs and Ads Watched in Real Time,” 16 Jan. 2013, <http://www.gracenote.com/press/01/16/2013/invidi/>.

spent on certain products, and potential interest in buying specific products based on searches).¹³⁰ Cox is also working with clypd, another company bringing “data-driven” programmatic targeting to TV.¹³¹

¹³⁰ “When you glean television household data from current buying behavior,” the company boasts, “you create a more accurate representation of the actual interests and needs of a specific group. This data will help you narrow down the focus for your advertising and identify more niche spots. These spots are usually more effective than premium spots due to the large concentration of potential customers.” Jennifer Goforth Gregory, “Television Household Data: Buyer Info or Demographic?” Videa Blog, 28 July 2015, <http://www.vida.tv/blog/television-household-data-buyer-info-or-demographic/>; <http://www.vida.tv/about/>; <http://adexchanger.com/tv-and-video/cox-turns-up-the-dial-on-tv-automation-with-launch-of-ssp-vida/>

¹³¹ clypd, “clypd Spearheads Industry-first Programmatic Advertising API for Television,” 17 June 2014, <http://clypd.com/clypd-programmatic-api-release/>.

Dish Network

“Our Programmatic TV product offers advertisers the targeting effectiveness and scale of our addressable advertising technology, full-screen ad viewability, and accurate, impression-based viewership information. Targeting criteria includes more than 80 variables per impression based on household demographics and viewing behaviors.”

—James Shears, general manager of addressable and programmatic,
DISH Media Sales¹³²

The Dish Network, with nearly 14 million TV and 623,000 broadband subscribers, offers a supply-side platform (SSP) to deliver data-driven programmatic targeted advertising to its 8 million “addressable” TV households living in 210 DMAs. These Dish customers are “exposed to digital buyers” via a “household identifier” (user ID) that is part of the set-top box. Based on the subscriber data received, “events [are] fired” that place the targeted content on that person’s device. The use of programmatic data applications by Dish helps it generate additional “incremental revenue” from its subscribers.¹³³ “As the lines between smartphones, computers, and TVs continue to blur, this marketplace allows advertisers to purchase targeted television ads using the same real-time bidding technology used to serve ads in desktop and mobile,” noted Dish’s addressable and programmatic advertising general manager.¹³⁴

Last Fall, Dish announced it was testing a “programmatic exchange that lets advertisers buy commercial time during live and DVR-playback TV on an impression-by-impression basis, targeted down to the household level and using real-time bidding.” The granular buying of households to target on an “impression level decisioning” basis by Dish allows it to replicate how the majority of digital ads are bought and sold today. Dish is working with data-targeting companies Rocket Fuel and DataXU as part of its new service, as well as with online video data-ad company TubeMogul. “Moment Scoring” is one product being used by the Dish/Rocket Fuel TV alliance. Using its “Artificial Intelligence and large big data architecture,” Moment Scoring “can identify influential moments, regardless of channel and device, and distribute marketing dollars accordingly.” Such

¹³² “Q&A: How Rocket Fuel and Dish are Bringing Moment Scoring™ to TV,” Rocket Fuel Blog, 27 Oct. 2015, http://rocketfuel.com/dish_qa/.

¹³³ Todd Spangler, “Dish TV Subscriber Base Shrinks in 2015,” *Variety*, 18 Feb. 2015, <http://variety.com/2016/biz/news/dish-q4-2015-sling-tv-subscribers-1201709339/>; Ciaran O’Kane, “Programmatic TV Uncovered: IPONWEB’s Brian Golbere Explains Specifics of the Dish SSP,” *ExchangeWire*, 20 Nov. 2015, <https://www.exchangewire.com/tradertalk/2015/11/20/programmatic-tv-uncovered-iponwebs-brian-golbere-explains-specifics-of-the-dish-ssp/>; Kelly Liyakasa, “DISH Opens A Programmatic Exchange, Enables RTB,” *Ad Exchanger*, 26 Oct. 2015, <http://adexchanger.com/digital-tv/dish-opens-a-programmatic-exchange-enables-rtb/>; “DISH Media Sales Initiates Industry’s First Programmatic Impression-by-Impression Linear TV Marketplace,” *Business Wire*, 26 Oct. 2015, <http://www.businesswire.com/news/home/20151026005518/en/DISH-Media-Sales-Initiates-Industry%E2%80%99s-Programmatic-Impression-by-Impression>.

¹³⁴ “Q&A: How Rocket Fuel and Dish are Bringing Moment Scoring™ to TV.”

scoring uses significant “computational power” for each individual impression (to determine, for example, “how valuable is that impression for that advertiser”).¹³⁵ DataXu predicts that this system will soon evolve into “person targeting within the house.”¹³⁶ To move towards that goal, DISH also wants to “facilitate data matching between its network, its current and future demand-side platform partners and advertiser/agency clients.” It explained that by “using a data onboarder, the DSP could match an advertiser’s first-party data with DISH’s subscriber/household list to identify households that match its desired attributes.” While DISH claims (as do other data-targeting companies) that this process involves “anonymized requests tied to a hashed household ID,” it’s clear that specific individuals are observed and identified. As the company explains, “Over time, we can see how households are engaging with spots throughout the week and make decisions on how to value those households as we optimize more bids based on demo/viewership trends.”¹³⁷

Data play an important role in its “ONPOINT” cross-device targeting product. Dish combines set-top box data with information from third-party data providers, including Acxiom, Dunhummy, Epsilon, Experian, Polk, and Speedeon (which boasts of “Over 3,000 Data Sources—Updated Nightly!” and claims the “most complete ethnic database”).¹³⁸ Dish says it has “one of the industry’s largest data footprints” and has

¹³⁵ Jeanine Poggi, “Dish to Woo Digital Advertisers With Programmatic Exchange for Targeted TV Ads,” *Ad Age*, 26 Oct. 2015, <http://adage.com/article/media/dish-network-woo-digital-advertisers-programmatic-tv-exchange/301037/>; DataXu, “DataXu Partners With DISH Media Sales and Innovative Global Auto Maker to Drive Programmatic TV Forward,” 10 Dec. 2015, <https://www.dataxu.com/press-release/dataxu-partners-dish-auto-maker-drive-programmatic-tv/>; “Rocket Fuel Sets Industry Standard With People-Based Marketing as Default Setting Across Programmatic Marketing Platform, Starting With Self-Service DSP,” *Business Wire*, 19 Nov. 2015, <http://www.businesswire.com/news/home/20151119005388/en/Rocket-Fuel-Sets-Industry-Standard-People-Based-Marketing>.

¹³⁶ “Q&A: How Rocket Fuel and Dish are Bringing Moment Scoring™ to TV”; “Rocket Fuel and Dish Bring Moment Scoring™ to Programmatic TV,” Rocket Fuel Blog, 26 Oct. 2015, <http://rocketfuel.com/rocket-fuel-and-dish/>; Andy Plessner, “(VIDEO) Rocket Fuel’s New CEO Targets DISH Moments,” *Huffpost Tech Blog*, 11 Jan. 2016, http://www.huffingtonpost.com/andy-plessner/video-rocket-fuels-new-ce_b_8955490.html.

¹³⁷ Liyakasa, “DISH Opens A Programmatic Exchange, Enables RTB.”

¹³⁸ Speedeon Data, “Customer Data,” <http://www.speedeondata.com/storage/>; Speedeon Data, “Ethnic Database,” <http://www.speedeondata.com/storage/ethnic>; Acxiom, “Partner Spotlight: Dish Media Sales,” <http://www.acxiom.com/partner-spotlight-dish/>; Experian, “Experian Addressable TV Advertising,” <http://www.experian.com/marketing-services/television-advertising.html>; Dish Media Sales, “Addressable,” <http://www.dishmediasales.com/addressable/>. In its partnership with Experian, moreover, DISH will be able to realize its personalized advertising aspirations on a variety of platforms, extending its reach from TV to mobile platforms and beyond. “For a consumer, the lines between smartphones, computers and TVs are blurring,” explains Gaynor. “DISH’s platform unites TV and digital buying, creating an easy avenue for brands to target their message comprehensively and efficiently across the entire consumer experience.” “DISH Media Sales Initiates Industry’s First Programmatic Impression-by-Impression Linear TV Marketplace,” 26 Oct. 2015, <http://about.dish.com/press-release/products->

“robust relationships with major data vendors in every vertical, including CPG, Auto, and Finance.” Ads are placed “across multiple devices and platforms,” including its Sling TV (an OTT service), Dish Anywhere, and through “Dish’s Set-Top Box applications.” It also enables targeting via ONPOINT’s mobile apps for sports content. Latinos are a distinct demographic that can be targeted as well.¹³⁹ With Sling, Dish reserves “a few minutes of ad space that it can sell itself for every hour of content,” which are “dynamically targeted” to its subscribers.¹⁴⁰ Dish also offers advertisers a number of ways to measure how their customers respond to targeted advertising.¹⁴¹

and-services/dish-media-sales-initiates-industrys-first-programmatic-impressi.As Experian North America Group President Matt Seeley observes, “The advent of addressable TV changes a lot about how you think about TV. It’s early days, but smart clients are demanding this. It’s not just an audience reach game any more. ... Experian has really been in the business of addressability for decades. We can marry an email address to almost everyone in the U.S.; we have loyalty card data; we have data from all sides. A lot of the marketing clouds have taken old technologies and painted them nicely, but they were all designed for a particular channel. We took a data-first approach and built everything from scratch. We can get real-time data from any source, and we can engage the customer on the channel they prefer: SMS, push notifications, email, display ads.” Quoted in Kim Davis, “Experian’s Data-first Marketing Suite,” The Hub, 4 Aug. 2015, <http://www.thehubcomms.com/marketing-automation/experians-data-first-marketing-suite/article/430525/2/>.

¹³⁹ Dish Media Sales, “Dish Media Sales Media Kit,” 2015-16, <http://www.dishmediasales.com/downloads/2015-Dish-Media-Sales-Media-Kit.pdf>.

¹⁴⁰ Troy Dreier, “Sling TV Says Targeted Ads Are Key to OTT Bundles: IBC Keynote,” Streaming Media, 12 Sept. 2015, <http://www.streamingmedia.com/Articles/Editorial/Featured-Articles/Sling-TV-Says-Targeted-Ads-Are-Key-to-OTT-Bundles-IBC-Keynote-106297.aspx>.

¹⁴¹ “DISH Media Sales Initiates Industry’s First Programmatic Impression-by-Impression Linear TV Marketplace.”

Time Warner Cable

“Our multi-screen audiences are an attractive base for advertisers (and we’ve) invested millions of dollars in algorithms and platforms [to find these] audiences. We’re at a point now where we are truly digital. Audiences, content and data are converging fast.”

— Sean Coar, group vice president of strategy and business decisions,
Time Warner Cable Media¹⁴²

Time Warner Cable (TWC) is expanding its cross-device and cross-platform targeting for advertisers.¹⁴³ Last year, TWC launched a multi-screen service that extended its ability to deliver “highly targeted and dynamic advertising solutions” beyond its “linear IP” and video-on-demand platforms to include such devices as tablets, smartphones, and laptops as well.¹⁴⁴ TWC began targeting iOS and Android mobile devices with plans to include Xbox, Roku, Samsung Smart TVs, and the desktop.¹⁴⁵ TWC enables the use of customer data to identify and target individuals regardless of the device that may be using.¹⁴⁶ TWC has also significantly expanded its mobile-platform marketing system, including through the use of data gathered by lead-generation techniques.¹⁴⁷ As TWC explained last summer, “We are your one-stop for targeted solutions on every screen. Backed by top data and insights in every category.”¹⁴⁸ TWC is engaged in a growing array of cross-

¹⁴² Quoted in Kelly Liyakasa, “How Comcast Could Upset The Programmatic TV Game,” Ad Exchanger, 23 June 2014, <http://adexchanger.com/digital-tv/how-comcast-could-upset-the-programmatic-tv-data-game/>.

¹⁴³ Time Warner Cable Media, “Available Solutions,” <http://www.twcmedia.com/TWC/PB/CustomerCoveragePage.aspx?pageid=4693&show=Solution> S.

¹⁴⁴ Cadent Technology, “BlackArrow Launches Advertising and Data Solutions for On-demand Content Viewed on Internet Connected Devices,” 10 Feb. 2015, <http://cadenttech.tv/blackarrow-launches-advertising-and-data-solutions-for-on-demand-content-viewed-on-internet-connected-devices/>. See also location and geo-targeting, for example: Cadent Technology, “Linear IP Advertising Infrastructure,” <http://cadenttechprod.wpengine.com/wp-content/uploads/2015/04/Linear-IP-Advertising-Infrastructure-CED-Wallchart.jpg>. The Advanced Advertising System TWC uses includes an “ad decision server” as well as what they call “server side cookies” to track ads viewed by a subscriber.

¹⁴⁵ Last Fall TWC began testing an IP-only video delivered to Roku in the New York City area. Time Warner Cable, “Time Warner Cable Tests New Way to Experience Video with TWC TV® Roku Trial in New York City,” 9 Nov. 2015, <http://www.timewarnercable.com/en/about-us/press/time-warner-cable-tests-new-way-to-experience-video-with-twctv-roku-trial-in-new-york-city.html>.

¹⁴⁶ Will Richmond, “BlackArrow Powers Dynamic Ad Insertion on Connected and Mobile Devices for Time Warner Cable,” VideoNuze, 10 Feb. 2015, <http://www.videonuze.com/article/blackarrow-powers-dynamic-ad-insertion-on-connected-and-mobile-devices-for-time-warner-cable>.

¹⁴⁷ DevelopmentNow, Time Warner Cable,” <https://developmentnow.com/project/time-warner-cable-business-class-mobile/>.

¹⁴⁸ “TWC Media—‘Grow Your Business,’” Vimeo, <https://vimeo.com/133161396>.

platform ad targeting (“Ads Everywhere”), including via location, search, apps, online ads, and Facebook.¹⁴⁹

In February 2016, TWC rolled out its “KernelConnect” data-tracking and analysis services “across its entire footprint.” Through KernelConnect the company’s advertisers are given “unprecedented transparency” as they target subscribers (via impressions) “across all digital mediums, including linear, iPad, and mobile screens.” Data are gathered and analyzed “across multiple platforms including display, TV Everywhere, Facebook, Twitter, Google Analytics and other third party data.” Illustrating the growing integration of monitoring and measurement applications in the provision of real-time and data-driven marketing and other content, TWC describes KernelConnect as a “marketing tool.” Each day this “tool sorts and integrates over 180 million records across five internal and external sources and collects 100 gigabytes of data and more than 150 terabytes of collected, processed and stored cable set-top box data.” This information enables marketers to “track campaigns” by examining such data as “income, ethnicity, online impressions, web and social analytics,” as well as specialized TWC “profiles.”¹⁵⁰

TWC uses the data-profiling capabilities of the Adobe Marketing Cloud to create “a unified customer profile” taking into account all known first-party data, including visitor and customer CRM database information, as well as second- and third-party data from partner and paid data providers. This system is used for new customer acquisition as well. Adobe explains that “a customer new to a TWC market that has searched on Google for ‘home cable and Internet packages’ may receive an offer for the TWC Triple Play bundle” These prospects can be targeted using “household income and household spending data.”¹⁵¹

¹⁴⁹ Time Warner Cable Media, “Automotive Marketing: Trend Alert,” <http://info.twcmedia.com/autoSS.html>; Time Warner Cable Media, “How Can You Reach Healthcare Consumers?” <http://info.twcmedia.com/Healthcare-Consumer-Digital-Trends.html>; Time Warner Cable Media, “How are Diners Learning about Local Restaurants?” <http://info.twcmedia.com/Restaurant-diner-path-to-purchase.html>; Time Warner Cable Media, “The Best Solutions to Meet Your Business Goals,” <http://info.twcmedia.com/Marketing-solutions-business-goals.html>.

¹⁵⁰ “The data is then combined into one user-friendly dashboard, allowing clients to accurately measure and strategically adjust omni-screen campaigns in real-time to increase return on investment with their target audience.” “Time Warner Cable Media Rolls out KernelConnect across Its Entire Footprint, Allowing Clients to Fully Quantify and Optimize the Effectiveness of Campaigns,” Business Wire, 15 Feb. 2015, <http://www.businesswire.com/news/home/20160215005414/en/Time-Warner-Cable-Media-Rolls-KernelConnect-Entire>. TWC developed other data targeting “cross-screen” tools as well. See, for example, its Tribes and Audience Select products. “Time Warner Cable Media Introduces New Services to Connect Clients with Their Consumers Across Screens,” Business Wire, 15 May 2014, <http://www.businesswire.com/news/home/20140515006485/en/Time-Warner-Cable-Media-Introduces-Services-Connect>.

¹⁵¹ Adobe, “Adobe Customer Story: Time Warner Cable is More than Television, Internet and Telephone,” 2015. <http://www.adobe.com/content/dam/Adobe/en/customer-success/pdfs/time-warner-cable-marketing-cloud-case-study.pdf>.

Hispanics are a key target across devices for Time Warner Cable, which explains that its “digital solutions” allow marketers to reach them when they use their mobile devices and go online in other ways. Hispanic-targeting products include an “Audience Network” (including pre-rolls) and Facebook ads (“Our access to third party data allows you to more precisely target your message to the right consumer and influence purchase decisions on Facebook”).¹⁵²

As one industry observer has stated, “For Time Warner Cable, one of America's largest cable and broadband firms, Big Data helps determine the course of both their marketing efforts and their network infrastructure. . . . Big Data is also a part of everyday life in the advertising department. According to Time Warner Cable Media president Joan Gillman, the company uses sophisticated correlation solutions that meld publicly available data such as voter registration records and real estate records with local viewing habits. This helps Time Warner's clients launch custom campaigns tailored to geographic or demographic microsegments of users.”¹⁵³

¹⁵² Time Warner Cable Media, “Available Solutions”; Time Warner Cable Media, “Business Insights & Trends,” <http://www.twcmedia.com/TWC/PB/CustomerLandingPageWide.aspx?pageid=20514>.

¹⁵³ Neal Ungerleider, “How Big Data Keeps Cable TV Watchers Hooked,” *Fast Company*, 14 Jan. 2013, <http://www.fastcompany.com/3004619/how-big-data-keeps-cable-tv-watchers-hooked>.

Verizon

“Verizon feels it has an oil field filled with valuable data and AOL, and AOL Platforms specifically, has the rig to get that data out and make it valuable. ... Verizon knows about their users, about their identities and locations [T]he Verizon data is a powerful enabler of connecting the digital world to the real and physical world.”

—Seth Demsey, AOL platforms chief technology officer¹⁵⁴

Verizon has put a powerful Big Data-driven tracking and targeting infrastructure in place for multiple platforms and devices, including mobile phones. Its acquisition of both AOL and Millennial Media in 2015, and its advertising partnership with Microsoft, provide it extraordinary capabilities for data gathering, analysis, and “actionability” in connection with its subscribers’ information. By acquiring mobile-marketing-data company Millennial Media, for example, Verizon gained access to customer data gathered by more than 60,000 apps, including “location, social, interest, and contextual” information. The company had “developed more than 700 million active server-side unique user profiles, over 60 million of which link multiple mobile devices and PCs to a single specific user ... ,” with some 175 million monthly unique users in the “United States alone.”¹⁵⁵

Verizon, “a leader in the world of big data solutions,” has focused its machine learning and analytical resources on taking advantage of all the information it accesses, including the Internet behaviors of its customers (from network, clickstream, location, mobile devices, and other sources). Verizon’s Precision Market Insights ad-targeting product (discussed below) is an example of how Big Data and its mobile information are being used.¹⁵⁶

Through its AOL division, Verizon has cutting-edge technology to ingest and use cross-device, platform-, and application-derived data sets on individuals, giving it a “holistic

¹⁵⁴ Quoted in Robert Andrews, “Verizon Is An ‘Oil Field’ Of Data For AOL Ads, Content Delivery,” Beet.TV, 15 Oct. 2015, <http://www.beet.tv/2015/10/aolverizondemsey.html>

¹⁵⁵ “AOL to Deepen its Programmatic Leadership with Agreement to Acquire Millennial Media,” 3 Sept. 2015, <http://www.millennialmedia.com/press/aol-to-deepen-its-programmatic-leadership-with-agreement-to-acquire-millennial-media>; Millennial Media, “Annual Report,” 2015 Form-10-K, <http://investors.millennialmedia.com/phoenix.zhtml?c=238412&p=irol-sec> ; Nitesh Patel, “AOL’s Acquisition of Millennial Media Will Strengthen the Reach and Depth of Verizon’s Mobile Advertising Capabilities,” Strategy Analytics,” 7 Sept. 2015, <https://www.strategyanalytics.com/strategy-analytics/blogs/media-services/wireless-media/wireless-media/2015/09/07/aol-s-acquisition-of-millennial-media-will-strengthen-the-reach-and-depth-of-verizon-s-mobile-advertising-capabilities#.VtHgKhj-BVo>

¹⁵⁶ Prior to acquiring AOL, Verizon was its “alpha client” for its data-driven programmatic targeting operations. Andy Plessner, “We Are Building a Mobile Programmatic Tech Stack, AOL’s Bob Lord,” Beet.TV, 20 Sept. 2015, <http://www.beet.tv/2015/09/lord.html>; Verizon Big Data Analytics Group, “Big Data & Analytics,” 2014, <http://news.verizonenterprise.com/2014/03/big-data-whitepaper-analytics-technology/>; Ashok N. Srivastava, “Large-Scale Machine Learning at Verizon,” Verizon, 2014, http://mmds-data.org/presentations/2014_/srivastava_mmds14.pdf.

view of the consumer's journey ... in real-time.”¹⁵⁷ This includes data from TVs, online platforms and mobile devices.¹⁵⁸ “ONE,” AOL’s data-management platform (DMP), provides a “cross-screen data strategy” for marketers and advertisers.¹⁵⁹ Marketers are able to “plug into” Verizon’s programmatic platforms to speedily activate a consumer “across all screens.”¹⁶⁰ “Verizon has been building an intelligent advertising ecosystem backed by its reservoir of information about consumers and their devices,” explained Digiday. “Verizon can track users’ location, online habits, app preferences, family demographics, and other billing insights that only a wireless carrier could know.” Through its DMP, buying platforms, mobile ad exchange, and other data-related services, Verizon is poised to have never-ending access to the personal information of its customers. For example, a diagram of Verizon’s programmatic mobile marketplace reveals data-connected relationships with ad agency data trading desks, brands, agencies, and leading online companies (including Google, Twitter and many others).¹⁶¹

Verizon has amassed a powerful—and invisible to the public—array of data partners. For example, its mobile-oriented Millennial Media division, which brings data from individuals who use tens of thousands of apps, offers “20+ 3rd Party Data Integrations.” It targets individuals through a “suite” of applications, including by location (“pinpointed

¹⁵⁷ AOL has integrated an array of data-related capabilities through acquisitions prior to its purchase by Verizon. The entities in AOL Platforms include Advertising.com, Adap.tv, ADTECH, AOL On, AOP, Buysight, Gravity, ONE, Pictela, and Marketplace. “AOL to Build First Cross-screen Programmatic Advertising Platform—ONE by AOL,” 26 Mar. 2014, <http://corp.aol.com/2014/03/26/aol-to-build-first-cross-screen-programmatic-advertising-platfor/>; “AOL Expands ONE by AOL Platform to Drive Data-driven, Personalized Creativity in Advertising,” 15 Sept. 2015, <http://corp.aol.com/2015/09/15/aol-expands-one-by-aol-platform-to-drive-data-driven-personaliz/>.

¹⁵⁸ “The ONE by AOL suite offers Media Planning, Audience Management, Creative Optimization, Analytics and Attribution, as well as our market-leading display, video and TV DSPs. All of this connected through shared technology, data and insights”; AOL, “Platforms: ONE by AOL for Advertisers,” <http://www.aolplatforms.com/onebyaol-advertisers>.

¹⁵⁹ “AOL Announces Attribution-enabled Data Management Platform—A Milestone for ONE by AOL,” 29 Sept. 2014, <http://corp.aol.com/2014/09/29/aol-announces-attribution-enabled-data-management-platform-a/>.

¹⁶⁰ “AOL Expands ONE by AOL Platform to Drive Data-driven, Personalized Creativity in Advertising.”

¹⁶¹ Garrett Sloane, “Inside Verizon's Plan to Seal Off Its Data (and Conquer Advertising),” Digiday, 11 Sept. 2015, <http://digiday.com/platforms/inside-verizons-plan-seal-off-data-conquer-advertising/>. The company was reportedly telling its ad-tech partners that it plans to keep all the information it has access to under its direct control. Millennial Media, “One by AOL: Mobile,” <http://www.millennialmedia.com/programmatic-marketplace#tech>; Millennial Media, “MoPub Integration—SDK,” <https://support.millennialmedia.com/hc/en-us/articles/205081010-MoPub-Integrations>; Millennial Media, “Google Integration,” <https://support.millennialmedia.com/hc/en-us/articles/210562488-Google-Integrations>; Millennial Media, “Enriching Impressions with Data,” <https://support.millennialmedia.com/hc/en-us/articles/204860794-Enriching- Impressions-with-Data>; Millennial Media, “Cookie Synching,” <https://support.millennialmedia.com/hc/en-us/articles/204860984-Cookie-Synching>.

location data from multiple sources”); from “profiles” (created through “17,000 data rich audience segments using our data, partner data and your data”); and through retargeting individuals (by using “existing data to enable you to continue the conversation ... across screens”).¹⁶² Verizon’s Millennial data partners include Axciom’s LiveRamp (merging a person’s online and offline information); Placed and Xad (using actual location data); AdTruth, Drawbridge and Tapad (enabling cross-device identification of individuals); Polk, Acxiom, Oracle Data Cloud, Neustar, Experian, and eXelate/Nielsen (data brokers); Nielsen Catalina, Kantar Shopcom and Datalogix (purchase data), comScore/Rentrak (cross-device measurement); TURN and Appnexus (data-targeting); and Crossix (health-data targeting).¹⁶³

Working with these partners, Verizon offers targeting “packages” directed towards African Americans, Hispanics, gamblers, health and fitness participants, teens and millennials, and even for tobacco users. (Sites permitting such ads include Weather Bug/Earth Networks, TuneIn, and Accuweather.com).¹⁶⁴ These partnerships enable the data-driven targeting and “conversion tracking” of users of mobile apps involving dozens of third-party data-oriented companies, including using a person’s location.¹⁶⁵ Verizon’s AOL division also operates the data-marketing business for Microsoft’s cross-platform properties, including the Bing search engine, MSN, Xbox, Outlook Mail, and Skype.¹⁶⁶

¹⁶² Millennial Media, “Mobile Targeting Solutions: Pinpointed Audiences,” <http://www.millennialmedia.com/solutions/advertiser/targeting>.

¹⁶³ Millennial Media, “Marketplace,” <http://www.millennialmedia.com/programmatic-marketplace>; Millennial Media, “Partner Showcase: Strategic,” <http://www.millennialmedia.com/partner-showcase?types=strategic>.

¹⁶⁴ Millennial Media, “Partner Showcase: Supply/Demand/Strategic,” <http://www.millennialmedia.com/partner-showcase?types=supply,demand,strategic&categories=130>. Tobacco Accepted Deal ID provided by Verizon’s Millennial division is 1444934896731510619. Millennial Media, “Open Packages,” <http://www.millennialmedia.com/programmatic-marketplace/ad-exchange/open-packages>.

¹⁶⁵ Millennial Media, “Developer Documentation: Getting Started,” <http://docs.millennialmedia.com/conversion-tracking/index.html>; Millennial Media, “Developer Documentation: Supported Third Parties,” <http://docs.millennialmedia.com/conversion-tracking/references/supported-third-parties.html>; Millennial Media, “Partner Showcase: Demand,” <http://www.millennialmedia.com/partner-showcase?types=demand>. Verizon is also using Adobe Target for testing, personalization, and mobile optimization, which raises concerns about its impact on the privacy decisions of subscribers. Adobe, “Adobe Marketing Cloud: Adobe Target: Mobile App Optimization,” <http://www.adobe.com/marketing-cloud/testing-targeting/mobile-app-optimization.html>.

¹⁶⁶ Rik van der Kooi and Frank Holland, “Microsoft Expands Partnerships with AOL and AppNexus, Bing to Power Search for AOL Properties,” Microsoft Blog, 29 June 2015, <http://blogs.microsoft.com/firehose/2015/06/29/microsoft-expands-partnerships-with-aol-and-appnexus-bing-to-power-search-for-aol-properties/>; “AOL and Microsoft Expand Enterprise-level Partnership,” 29 June 2015, <http://corp.aol.com/2015/06/29/aol-and-microsoft-expand-global-enterprise-level-partnership/>.

Verizon/AOL is also using native and app ad formats that help drive additional data collection.¹⁶⁷

Verizon's Precision Market Insights "enables better 1:1 understanding of customers across physical and digital contexts ..." and takes advantage of a person's "app usage, location, clickstream" as well as other online and offline information.¹⁶⁸ Even prior to buying data-gathering assets such as AOL, Verizon had deals with Oracle (BlueKai), RUN, Experian, Acxiom, and others, enabling it to operate a "precise" cross-device and location-targeting system. RUN's "Device Connect provided Verizon's PrecisionID product," giving it insight into a person's actions on apps, mobile phones, and transactions. Verizon now has "mobile browsing and location data" (which it combined with third-party data-broker information); a "view across various types of mobile" use (such as with Facebook, YouTube, Twitter); tremendous reach (a "billion mobile browsing transactions" per month); and "scale"—including both a "US-wide location view [and a] 24-hour view of browsing and location." It also offered "precision retargeting online and offline."¹⁶⁹

While the controversy over the use of its "Unique Identifier Header" (super cookie) led to Verizon allowing its customers to opt-out of its data-targeted ad system ("relevant advertising"), it has combined its arsenal of information with that harvested by AOL/Millennial Media.¹⁷⁰ With mobile, Verizon has made several acquisitions to help it

¹⁶⁷ For example, this 2016 deal: "AOL Announces Strategic Partnership with Taboola," 20 Jan. 2016, <http://corp.aol.com/2016/01/20/aol-announces-strategic-partnership-with-taboola/>; Kelly Liyakasa, "AOL Primes A Programmatic Creative Platform," Ad Exchanger, 15 Sept. 2015, <http://adexchanger.com/creative/aol-primers-a-programmatic-creative-platform/>.

¹⁶⁸ Srivastava, "Large-Scale Machine Learning at Verizon."

¹⁶⁹ Allison Schiff, "Publicis Groupe Acquires Programmatic Platform RUN," Ad Exchanger, 28 Oct. 2014, <http://adexchanger.com/ad-exchange-news/publicis-groupe-acquires-programmatic-platform-run/>; Judith Aquino, "Run CEO On Using Verizon's PrecisionID For Deterministic Mobile Solution," Ad Exchanger, 3 June 2014, <http://adexchanger.com/mobile/run-ceo-on-using-verizons-precisionid-for-deterministic-mobile-solution/>; Vivek Gadiraju, "Data in the Real World: Leveraging Mobile Intelligence to drive results," Verizon, 2014, <http://www.docfoc.com/data-in-the-real-world-leveraging-mobile-intelligence-to-drive-results/>; Allison Schiff, "Can You Identify Me Now? A Deep Dive On Verizon's Data Practices," Ad Exchanger, 9 Oct. 2014, <http://adexchanger.com/data-exchanges/can-you-identify-me-now-a-deep-dive-on-verizons-data-practices/>; Run, <http://www.runads.com/>.

¹⁷⁰ "Verizon to Share Wireless Customers' Browsing Data with AOL's Advertising Network," FierceWireless, 7 Oct. 2015, <http://www.fiercewireless.com/story/verizon-share-wireless-customers-browsing-data-aols-advertising-network/2015-10-07/>; Max Ochoa, "'Zombie' Cookie ID to be Suspended Pending Re-evaluation," Turn Blog, 17 Jan. 2015, <http://www.turn.com/blog/zombie-cookie-id-to-be-suspended-pending-re-evaluation/>; Julia Angwin and Mike Tigas, "Zombie Cookie: The Tracking Cookie That You Can't Kill," Pro Publica, 14 Jan. 2015, <https://www.propublica.org/article/zombie-cookie-the-tracking-cookie-that-you-cant-kill>. Verizon has also built a data-driven targeting platform for its new "Go90" "mobile first social entertainment platform, where social conversation meets consumption...all within one app." "Verizon delivers the web, video and app data that paints the true portrait of our

deliver targeted advertising and programming to subscribers watching video on mobile devices and IP-connected TVs, including Edgecast, upLynk and Intel Media's OnCue platform."¹⁷¹

Verizon is making a major push to expand cross-device programming and targeting, including ways to favorably use its cloud infrastructure to deliver and measure digital advertising. "The new reality is that people are off the couch and on their devices, anywhere and everywhere. ... [T]he new consumer reality is your opportunity," the company says to potential OTT video clients, promising to help them deliver "dynamic, targeted ads ... [so] each user still receives a unique experience with fully dynamic

customers through things like age and location," notes a Verizon/AOL executive. Ad giant Publicis gains access to a variety of data-targeting opportunities with Go90, as part of an agreement with Verizon. Kelly Liyakasa, "AOL Unveils A Mobile Video Network ... But TV Is Still The Benchmark," *Ad Exchanger*, 29 Sept. 2015, <http://adexchanger.com/digital-tv/aol-unveils-a-mobile-video-network-but-tv-is-still-the-benchmark/>; Tim Baysinger, "Do We Need Another Video Platform? Verizon Thinks So. Go90 launches with exclusive Publicis ad deal," *Ad Week*, 29 Sept. 2015, <http://www.adweek.com/news/television/do-we-need-another-video-platform-verizon-thinks-so-167234>; Andy Plessner, "AOL is Powering Verizon's Go90 Mobile Video App for Ad Decisioning," *Beet.TV*, 22 Feb. 2016, <http://www.beet.tv/2016/02/go90-2.html>. Verizon's contracts with its app providers should be reviewed to see what data-related objectives are included. Tom Dotan, "Verizon's Digital Content Bubble," *The Information*, 25 Feb. 2016, <https://www.theinformation.com/articles/verizons-digital-content-bubble>. In March 2016, Verizon settled with the FCC in a case involving its use of so-called "supercookies" for ad tracking. Under the agreement, "Verizon Wireless is notifying consumers about its targeted advertising programs, will obtain customers' opt-in consent before sharing UIDH [Unique Identifier Headers] with third parties, and will obtain customers' opt-in or opt-out consent before sharing UIDH internally within the Verizon corporate family" Federal Communications Commission, "FCC Settles Verizon 'Supercookie' Probe, Requires Consumer Opt-In for Third Parties," 7 Mar. 2016, <https://www.fcc.gov/document/fcc-settles-verizon-supercookie-probe>.

¹⁷¹ Steve Donohue, "How Verizon Will Use Targeted Ads and 'Non-Subscription Access' to Power OTT Product," *The Donohue Report*, 26 June 2015, <http://www.donohuereport.com/how-verizon-will-use-targeted-ads-and-non-subscription-access-to-power-ott-product/>. As a recent patent application indicates, Verizon will be introducing "an advertising-based access model ... [for] 'non-subscription' access to the network, [which] permits sponsors to pay for a user's access to a wireless network instead of the user. Thus, non-subscription access grants the user free (or reduced cost) network access, and in return the user agrees to accept advertising and/or to an advertiser's terms prior to gaining access." Quoted in Donohue, "How Verizon Will Use Targeted Ads and 'Non-Subscription Access' to Power OTT Product." It calls this service, now offered in "Beta," as FreeBee Data. Verizon, "Introducing FreeBee Data," <http://freebee.verizonwireless.com/business/freebeedata>.

ads.”¹⁷² Verizon also provides a set of “integrated analytics” for tracking the use of video across consumer devices.¹⁷³

Verizon also helps programmers “beat ad blockers” to thwart consumer privacy concerns: the “best way to beat ad blockers is to not do the ad insertion on the client device at all. Verizon’s server-side ad insertion (SSAI) technology dynamically stitches the ad into the content as it is streamed to the requesting device. For the playback client, it appears that there is only one video stream, which just happens to contain both the original content and the ads. ... In addition, all of the calls to the ad server take place in the cloud, away from the client device. Because of this abstraction, the ad blocker has no chance to listen for the request and intercept the call.”¹⁷⁴

Verizon is aggressively pushing the boundaries for the identification and tracking of consumers regardless of device. In January, Verizon’s investment arm “sunk \$5.5 million into intent-targeting platform Qualia, which recently merged with cross-device vendor Blue Cava.”¹⁷⁵ Qualia’s “Intent Quality Decision Engine” collects and analyzes “millions of [consumer-data] signals daily ... which are then combined with additional data and mapped to each person and all of their devices.”¹⁷⁶ A Verizon Ventures executive explained that “being able to take intent data and on a real time basis look at where those consumers are going across screens is vital, because no action today is done in isolation.

¹⁷² Verizon Digital Media, “It’s About Time,” <https://www.verizondigitalmedia.com/iat-2015/>. See also Verizon Digital Media, “Verizon Enables Digital Content Brands To Launch Multi-Platform Online Video Experiences Faster,” 10 Nov. 2015, <https://www.verizondigitalmedia.com/blog/2015/11/verizon-enables-digital-content-brands-to-launch-multi-platform-online-video-experiences-faster/>.

¹⁷³ upLynk, “Analytics,” <http://www.uplynk.com/analytics.html>; Verizon, “Verizon Digital Media Services Acquires upLynk Assets and Operations for Expanded Video Streaming Capabilities,” 13 Nov. 2013, <http://www.verizon.com/about/news/verizon-digital-media-services-acquires-uplynk-assets-and-operations-expanded-video-streaming-capabilities/>; Ryan Lawler, “Verizon Is Acquiring Content Delivery Network EdgeCast For More Than \$350 Million,” TechCrunch, 7 Dec. 2013, <http://techcrunch.com/2013/12/07/verizon-edgecast/>; Mikael Ricknäs, “Verizon Buys Intel’s Failed ‘OnCue’ TV Division,” *PC World*, <http://www.pcworld.com/article/2089740/verizon-continues-video-buying-spree-with-intel-deal.html>.

¹⁷⁴ Verizon Digital Media, “Protecting Online Video Services Against The Threat Of Ad Blockers,” <https://www.verizondigitalmedia.com/blog/2015/12/protecting-online-video-services/?source=igodigital>.

¹⁷⁵ Allison Schiff, “2016 Edition: A Marketer’s Guide To Cross-Device Identity,” Ad Exchanger, 29 Feb. 2016, <http://adexchanger.com/data-exchanges/2016-edition-marketers-guide-cross-device-identity/>; Kelly Liyakasa, “Verizon Ventures Invests \$5.5M In Qualia, Talks Buying Into Ad Tech In An Unforgiving Climate,” Ad Exchanger, 16 Feb. 2016, <http://adexchanger.com/investment/verizon-ventures-invests-5-5m-qualia-talks-buying-ad-tech-unforgiving-climate/>.

¹⁷⁶ Qualia, “Consumers Declare their Intent Online,” <http://www.qualia-media.com/#todays-consumers>.

Combined, they're addressing how you can begin to piece together a story around ad decisioning and provide attribution about how a [mobile] exposure contributed to a sale or other action.”¹⁷⁷

¹⁷⁷ Quoted in Liyakasa, “Verizon Ventures Invests \$5.5M In Qualia, Talks Buying Into Ad Tech In An Unforgiving Climate.”

Disney/ABC

“Programmatic advertising is picking up momentum at Disney. What started as a small trend has now become a mainstream rally across the company. More and more Disney franchises are experimenting with real-time bidding and seeing its benefits ... the ability to understand Disney's customers' behaviours to a level that haven't been seen before.”

— Chris Wojciechowicz, digital acquisition manager, Disney¹⁷⁸

Disney has built up a growing use of data for all its operations, including programming and advertising.¹⁷⁹ In 2014, ABC began a “programmatic sales initiative” that allowed advertisers to use their own data to buy digital viewers to target. That has expanded to include “dynamic ad insertion in VOD and set-top box inventory.” “When we weave dynamic ad insertion into a set-top box VOD environment, we are enhancing our reach and scale, making a unified offering much more impactful Applying data is a big piece of what our solution looks like now, both for linear and digital opportunities,” explained an ABC executive.¹⁸⁰ ABC is working with Comcast’s FreeWheel programmatic system to deliver this capability, including first- and third-party data integration. “Clients can also plan and buy ABC campaigns using a tool that matches set-top box data to either clients’ first-party information or third party data sets to target ads based on consumer attributes,” noted its president for ad sales.¹⁸¹ ABC has deployed its Data Management platform “across sister media assets including Disney, ESPN, Maker Studio and ABC Family.”¹⁸² Disney ABC TV’s Consumer Data & Analytics division is

¹⁷⁸ Rubicon Project, “An Interview with Disney's Chris Wojciechowicz,” 12 Aug. 2014, <http://buyercloud.rubiconproject.com/content/interviews/chris-wojciechowicz-disney/>.

¹⁷⁹ “Disney | ABC TV Group: Principal Data Scientist,” KDnuggets, 14 July 2015, <http://www.kdnuggets.com/jobs/14/07-15-disney-principal-data-scientist.html>; Derrick Harris, “How Disney Built a Big Data Platform on a Startup Budget,” Gigaom, 16 Sept. 2012, <https://gigaom.com/2012/09/16/how-disney-built-a-big-data-platform-on-a-startup-budget/>; “Disney Use-Case for Big Data: Transforming into a Fact-Based Enterprise (video),” DataMashup, <http://www.datamashup.info/disney-use-case-for-big-data-transforming-into-a-fact-based-enterprise-video/>.

¹⁸⁰ Quoted in Anthony Crupi, “ABC Dips a Toe Into the Programmatic Pool: Partnership with FreeWheel Furthers the Cause of Automated Buying,” *Adweek*, 13 May 2014, <http://www.adweek.com/news/television/abc-dips-toe-programmatic-pool-157656>. See also Andy Plesser, “Addressable TV Advertising is Here, Finally, says AT&T’s AdWorks Dunsche,” Beet.TV, 30 June 2015, <http://www.beet.tv/2015/06/att-dunsche.html>.

¹⁸¹ Jon Lafayette, “Upfronts 2015: ABC Announces New Ad Data Products,” *Broadcasting & Cable*, 12 May 2015, <http://www.broadcastingcable.com/news/upfront-central/upfronts-2015-abc-announces-new-ad-data-products/140817>.

¹⁸² Disney Data & Analytics Conference, “2015 Conference Agenda,” 17-18 Sept. 2015, <http://www.disneydataconference.com/2015-agenda.html>; Vincent Flood, “ABC Goes Programmatic as First Partner for New FreeWheel Programmatic Offering,” Video Ad News, 14 May 2014, <http://www.videoadnews.com/2014/05/14/abc-goes-programmatic-first-partner-new-freewheel-programmatic-offering/>; Jeff Baumgartner, “FreeWheel Shoots for Ad Unity,” *Multichannel News*, 9 June 2015, <http://www.multichannel.com/news/next-tv/freewheel-shoots->

responsible for data acquisition, data modeling, advanced analytics, placing “data-driven decision-making at the core of our digital strategy.”¹⁸³

Disney’s ESPN works with data provider Oracle Marketing Cloud, which helps it connect to “all major DMP, DSP, exchanges, and agency trading desks.” The Walt Disney Company, for all its properties, has an “audience data and analytics” deal with Cablevision. (“The multiyear deal provides more granular, robust and actionable intelligence based on viewer tuning activity ...”). ESPN has developed a “Cross Platform Effectiveness Initiative” (XPE) measurement system for video advertising covering OTT, mobile, desktop, and TV platforms.¹⁸⁴

In an effort to “increase number and duration of video views” and to “monitor and understand user behavior by device and platform,” for example, Disney’s analytics team turned to Platfora Big Data Analytics “to perform complex customer analytics on extremely large volumes of multi-structured data, and to track usage across hundreds of devices of various types. ... ‘Our programming is distributed over the widest possible range of devices and platforms,’ explains Khai Tran, Senior Manager, Digital Media. ‘Everything from set-top boxes to laptops, mobile phones, tablets, and over-the-top devices such as Roku and Apple TV. Digital users perform more than 50 million

ad-unity/391209; Tyler Loechner, “ABC Appoints Dean As First VP Of Programmatic And Data-Driven Sales,” Media Post Real-Time Daily, 10 July 2014, <http://www.mediapost.com/publications/article/229784/abc-appoints-dean-as-first-vp-of-programmatic-and.html>.

¹⁸³ Steve Whittington, “Executive at The Walt Disney Company ▪ Analytics ▪ Strategy ▪ Marketing ▪ CRM ▪ Concept Development,” Linked In, <https://www.linkedin.com/in/steve-whittington-9385393>; Jaclyn DuPont, “Analyzing Digital Consumer Data—The Right Insights at the Right Time,” Digital Collaboratives, 15 May 2015, <http://thecollaboratives.com/2015/05/15/analyzing-digital-consumer-data-the-right-insights-at-the-right-time/>.

¹⁸⁴ Ana Livia Coelho, “ESPN and Cablevision Establish Long-Term Agreement for Audience Data & Analytics,” ESPN MediaZone, 12 May 2015, <http://espnmediazone.com/us/press-releases/2015/05/espn-cablevision-establish-long-term-agreement-audience-data-analytics/>; Steve McClellan, “More Screens Are Better Than One: ESPN Unveils New Cross-Screen Research At 4As,” Media Post Agency Daily, 25 Mar. 2015, <http://www.mediapost.com/publications/article/246443/more-screens-are-better-than-one-espn-unveils-new.html>. “ESPN’s Cross Platform Effectiveness initiative (XPE) provides a deep, longitudinal, multi-advertiser, multi-database resource for cross-platform effectiveness discovery. The hub of XPE is a continuous brand health survey, designed from the marketer’s point of view, which has been measuring cross-platform ad effectiveness for over two and a half years. Numerous other sources of longitudinal data are housed together with the survey metrics, and together they are modeled to create a set of ‘living’ variables that impact communications success and inform a host of today’s complex marketing decisions.” Chris Barton and Emily Bockino, “ESPN XPE: Connecting Fieldwork and Passive Measurement Through Modeling,” Disney Data & Analytics Conference, 17-18 Sept. 2015, <http://www.disneydataconference.com/presentations.html>.

downloads per month, to more than 40 different types of devices. In total, this comes to more than 20 million hours of use and billions of log events each month.”¹⁸⁵

¹⁸⁵ Platfora, “Case Study: Disney ABC,” <http://www2.platfora.com/rs/platfora/images/disney-abc-platfora-case-study.pdf>.

News Corp (Fox)

“With more and more of our viewers consuming content across screens, digital video is, of course, a huge focus. ... [T]he DoubleClick Ad Exchange has allowed us to connect our Internet-delivered television content ... with the controls we need to programmatic demand. This is a great step forward ... towards being able to better monetize this cross-screen content.”

—Zach Friedman, vice president of digital ad sales,
FOX News Channel & FOX Business Network¹⁸⁶

The international media company is expanding its use of consumer data and digital marketing throughout its cross-platform programming operations.¹⁸⁷ News Corp uses (and is a major investor in) the programmatic data-targeting leader Rubicon Project.¹⁸⁸ It also works with leading data broker and data technology companies such as Krux and Merkle. Fox Broadcasting is applying forms of Big Data to spur advanced and programmatic advertising with its digital media products, including “cross-platform data acquisition and mining.”¹⁸⁹ It is focused on advertising initiatives for social and mobile media, as well as with video on demand, connected TV, and elsewhere online.¹⁹⁰

¹⁸⁶ Quoted in DoubleClick, “Announcing New Ways for TV Providers to Manage Cross-screen, Addressable Digital Video Advertising,” Apr. 2015, <https://www.doubleclickbygoogle.com/articles/announcing-new-ways-tv-providers-manage-cross-screen-digital-video-advertising>.

¹⁸⁷ For example: “A data-driven advertising product combining News Corp’s readership data with insights from big data analytics poster child, Quantum, is among several new digital offerings launched” last July. “News Corp Partners with Quantum and MCN to Launch New Digital Advertising Products,” CMO, 31 July 2015, <http://www.cmo.com.au/article/580909/news-corp-partners-quantum-mcn-launch-new-digital-advertising-products/>; “News Corp To Acquire Move, Inc.” 30 Sept. 2014, <http://newscorp.com/2014/09/30/news-corp-to-acquire-move-inc-2/>; “News Corp Australia Announces Series of Commercial Launches,” 29 July 2015, <http://www.newscorpastralia.com/news/news-corp-australia-announces-series-commercial-launches>; “Job Details: Director, Ad Solutions,” Fox Careers, 11 Feb. 2016, <https://foxcareers.com/Search/JobDetail/FNG0004655?organization=Fox+Networks+Group>; Michelle Manafy, “Q&A with Jeff Misenti, Chief Digital Officer, Fox News on Cross-platform Advertising,” Digital Content Next, 24 Mar. 2014, <https://digitalcontentnext.org/blog/2014/03/24/qa-with-jeff-misenti-cdo-fox-news-on-cross-platform-advertising/>.

¹⁸⁸ “News Corp Australia Announces Series of Commercial Launches”; Susan Kuchinskas, “Rubicon Acquires Fox Audience Network,” Click Z, 1 Nov. 2010, <https://www.clickz.com/clickz/news/1866161/rubicon-acquires-fox-audience-network>.

¹⁸⁹ Edward Skolarus, “Vice President, Digital Advertising & Advanced Platforms at Fox Broadcasting Company,” Linked In, <https://www.linkedin.com/in/edwardskolarus>.

¹⁹⁰ Fox, “Position Description and Candidate Profile: Senior Vice President of Digital Marketing Solutions,” May 2014, <http://cupusa.org/wp-content/uploads/2014/05/Fox-SVP-Digital-Marketing-SolutionsLPD1.pdf>.

Through Krux, News Corp accesses a “people data activation” data management platform that engages in cross-device identification of individuals. Krux’s system integrates an array of data, drawing on such partners as Acxiom, Nielsen’s eXelate, Neustar, and Equifax’s IXI.¹⁹¹ In 2016, News Corp’s three most important digital marketing initiatives include “doing more with data,” including for “measurement [and] targeting.”¹⁹² News Corp. is also an “inaugural partner” with Merkle’s MerkleOne data platform, a system designed to “match” first-, second- and third-party data sets. Merkle’s data assets include online and offline sources, creating “online digital targeting” applications that tap into “over 2 billion records” on 275 million individuals.

News Corp owned 21.3 percent of the Rubicon Project as of 2015.¹⁹³ Through its work with Rubicon, News Corp (Fox) has access to “Big Data Analytics and Machine Learning” and an “Advertising Automation Cloud” that uses “large volumes of data” to target consumers.¹⁹⁴ It also bought interactive video advertising platform True[X] in 2014, which is working with Comcast’s FreeWheel to give it access to inventory from “FreeWheel’s base of media and entertainment brands (such as from NBCUniversal, Turner Broadcasting, Viacom, Sky, DirecTV and ABC.)”¹⁹⁵ Also in 2014, Fox entered into agreements with Google’s DoubleClick Ad Exchange, Facebook’s LiveRail (data onboarding), and Vindico, a video ad platform provider, to bring more data to bear when targeting consumers online.¹⁹⁶ Last September, News Corp purchased global digital and

¹⁹¹ Through Krux, News Corp. accesses its “people data activation” system that identifies a person across devices for targeting. Krux, “Partners,” <http://www.krux.com/partners/>.

¹⁹² Jay Sayers, “News Corp. on Programmatic, Ad Automation—Impacts For 2016,” 25 Feb. 2016, <https://jaysears.com/2016/02/25/news-corp-on-programmatic-ad-automation-impacts-for-2016/>.

¹⁹³ Rubicon Project, “News Corporation,” <http://rubiconproject.com/investors/news-corporation/>; Judith Aquio, “Flashback: Why The News Corp. Deal Was A Turning Point For The Rubicon Project,” Ad Exchanger, 5 Feb. 2014, <http://adexchanger.com/online-advertising/flashback-why-the-news-corp-deal-was-a-turning-point-for-the-rubicon-project/>.

¹⁹⁴ Rubicon Project, Annual Report, 2015, <http://investor.rubiconproject.com/investors/financial-information/sec-filings/default.aspx>; Kelly Liyakasa, “Merkle Brews A Custom Audience Platform For Marketers and Publishers,” Ad Exchanger, 28 Sept. 2015, <http://adexchanger.com/digital-marketing-2/merkle-brews-a-custom-audience-platform-for-marketers-and-publishers/>. It’s worth noting that Merkle’s product has relationships with an array of data companies, including Oracle, Google, and Adobe. Merkle, “DataSource,” <http://www.merkleinc.com/datasource#.VtSPPBj-BVo>.

¹⁹⁵ Mike Shields, “21st Century Fox to Acquire Ad Tech Firm TrueX for \$200 Million,” *The Wall Street Journal*, 17 Dec. 2014, <http://blogs.wsj.com/cmo/2014/12/17/21st-century-fox-to-acquire-ad-tech-firm-truex-for-200-million/>; Kelly Liyakasa, “Fox’s True[X], FreeWheel Team Up To Help TV Companies Take On Big Tech Providers,” Ad Exchanger, 15 Dec. 2015, <http://adexchanger.com/digital-tv/foxs-truex-freewheel-team-up-to-help-tv-companies-take-on-big-tech-providers/>.

¹⁹⁶ Yuyu Chen, “Fox Takes Leap Into Programmatic,” Click Z, 11 Sept. 2014, <https://www.clickz.com/clickz/news/2364483/fox-takes-leap-into-programmatic>; Kelly Liyakasa, “Grazing In ‘Preferred’ Pastures – Why Google Expanded ‘Partner Select,’” Ad Exchanger, 8

social video ad platform Unruly, which has a “powerful set of 2 trillion video views and sophisticated targeting capabilities ... [and] uses historical sharing behavior to predict the potential for video ads to go viral across all digital touch points.”¹⁹⁷

Jan. 2015, <http://adexchanger.com/digital-tv/grazing-in-preferred-pastures-why-google-expanded-partner-select/>; Todd Spangler, “Fox TV Stations Group Inks Pact with Facebook’s LiveRail for Online-Video Ads,” *Variety*, 4 Dec. 2014, <http://variety.com/2014/digital/news/fox-tv-stations-group-inks-pact-with-facebooks-liverail-for-online-video-ads-1201371311/>.

¹⁹⁷ “News Corp To Acquire Social Video Ad Platform Unruly,” 16 Sept. 2015, <http://newscorp.com/2015/09/16/news-corp-to-acquire-social-video-ad-platform-unruly/>.

Turner Broadcasting

“Convergence has arrived. Data and content are officially hitched.”
—Donna Speciale, president, Turner Broadcasting Ad Sales¹⁹⁸

Advanced data targeting has been a key strategy for Turner Broadcasting (part of Time Warner) and it is continually expanding how it uses information to deliver cross-platform marketing.¹⁹⁹ Its “Turner Data Cloud,” an “advanced data management platform,” works with powerful data brokers and data targeting companies, including Krux, Oracle’s Data Cloud, and Epsilon (Alliance Data). The cloud enables Turner to gather, analyze, and use first- and third-party data, and also allows advertisers to “directly link” in order to “effectively execute targeting in digital and soon linear.” Turner’s Cloud “incorporates an understanding of past, present and future consumer behavior” to deliver a “360-degree view.” The cloud permits “marketers to shop for data culled from Turner’s various TV and digital properties,” including information on individuals “who have shared stories via social media” or “downloaded games ... Then, that data can be potentially married with a marketer’s own data ...”²⁰⁰ For example, Krux (which engages in “people data activation”) helps Turner incorporate what it calls “anonymized Turner IDs” with data for better cross-platform targeting, with Oracle and Epsilon enabling “some of the more complex CRM data integrations where marketers might want to bring offline or

¹⁹⁸ Quoted in “Turner Broadcasting ‘Turns It Up’ at 2015 Upfront,” 13 May 2015, <https://pressroom.turner.com/us/turner-advertising-sales/upfront-2015-turner-broadcasting-turns-it#.VcpnAHg5vdm>.

¹⁹⁹ “Turner Ad Sales monetizes the company’s portfolio of leading news, sports, kids and entertainment properties through advertising and brand activations. Attracting a wide-scale audience of diverse consumers, the collection includes leading media brands CNN, HLN, TBS, TNT, truTV, Cartoon Network, Boomerang, Adult Swim, Bleacher Report and Turner Sports’ high-profile coverage of the NBA, MLB, NCAA and PGA. In addition, the company has digital sales partnerships with the NBA, NASCAR, NCAA and PGA.” “Turner Takes Next Step to Re-Imagining Advertising with TURNER IGNITE,” 4 Jan. 2016, <http://www.turner.com/pressroom/turner-takes-next-step-re-imagining-advertising-turner-ignite#sthash.qWRwFGcH.dpuf>; “Cannes Conversations: Michael Salerno of Turner Broadcasting—The Jay Sears Interview,” MyersBizNet, 10 June 2014, <http://www.jackmyers.com/jackmyers-think-tank/Cannes-Conversations-Michael-Salerno-of-Turner-Broadcasting--The-Jay-Sears-Interview.html>; “Turner Digital Partners with Rubicon Project for New Programmatic Ad Buying Platform,” Portada, 28 Oct. 2013, <http://www.portada-online.com/2013/10/28/turner-digital-partners-with-rubicon-project-for-new-programmatic-ad-buying-platform/>; “Turner Broadcasting Launches the New Turner Data Cloud to Power the Turner Premium Marketplace,” 13 May 2015, <https://www.turner.com/pressroom/united-states/turner-advertising-sales/upfront-2015-turner-data-cloud>.

²⁰⁰ “Turner Takes Next Step to Re-Imagining Advertising with TURNER IGNITE”; Mike Shields, “Turner Broadcasting Pitches In-House Data Alongside New TV Shows,” CMO Today, 13 May 2015, <http://blogs.wsj.com/cmo/2015/05/13/turner-broadcasting-pitches-in-house-data-alongside-new-tv-shows/>; “Turner Broadcasting Launches the New Turner Data Cloud to Power the Turner Premium Marketplace.”

multichannel data to the table”²⁰¹ Epsilon is helping Turner bring “together all first- and third-party data sources and integrating predictive analytics [to] anticipate consumer behavior.”²⁰² Turner’s programmatic data targeting incorporates a number of formats, including real-time bidding, open exchange, and private marketplaces (PMP).²⁰³

Turner is also incorporating IBM’s Watson “state of the art cognitive technology” to help “obtain actionable insights about advertisers and trends,” “infusing new levels of data and science into advertising decisions.” Watson will help fuel Turner’s “Incite”—the company’s “core intelligence platform for advertising sales”—as will data broker Neustar’s predictive analytics for marketing service.²⁰⁴ A “wide combination of new analytics” is also being used to “better help target” consumers on “digital and traditional TV platforms.” Turner’s other recent “advertising solutions” initiatives include “Launchpad, TargetingNow, AudienceNow, ROINow, ProvableROI and Branded Content.”²⁰⁵ Last year, Turner announced it would use Rentrak’s “advanced

²⁰¹ Kelly Liyakasa, “Turner Broadcasting: TV Companies Can Have Data Clouds Too,” Ad Exchanger, 1 July 2015, <http://adexchanger.com/digital-tv/turner-broadcasting-tv-companies-can-have-data-clouds-too/>; Krux, “People Data Activation,” <http://www.krux.com/resources/people-data-activation-completeness-paper/>.

²⁰² “Turner Broadcasting Partners With Epsilon To Launch Turner Data Cloud,” PR Newswire, 30 June 2015, <http://www.prnewswire.com/news-releases/turner-broadcasting-partners-with-epsilon-to-launch-turner-data-cloud-300106689.html>.

²⁰³ For example, qualifications for a recent Turner programmatic job included the following requirements:

- Solid knowledge of audience data
 - Ex: DLX, Blue Kai, Krux, Nielsen, Comscore, Rentrak, TRA, Server data, ACR data
- Solid Knowledge of advanced data sets in the media space (ex: Nielsen Catalina, Nielsen Buyer Insights, Rentrak, TRA)
- Solid knowledge of Ad technologies and how they can leveraged to create new advertising solutions (ex: ACR, geo location, beaconing)
- Solid knowledge of advertiser side data solutions
 - Ex: Homescan, Scantrack, IRI, NPD, JD Power, Rentrak Studio, etc.
- Solid Knowledge of data integration techniques and processes
 - Data matching & key vendors, etc.

Turner, “VP Ad Innovation \ Programmatic Solutions,” http://jobsatturner.com/new-york/sales/vp-ad-innovation-_programmatic-solutions-jobs.

²⁰⁴ “Neustar to Acquire Marketing Analytics Technology Provider MarketShare to Create Global Leader in Marketing Services,” 5 Nov. 2015, <https://www.neustar.biz/about-us/news-room/press-releases/2015/neustar-to-acquire-marketing-analytics-tech-provider>.

²⁰⁵ Wayne Friedman, “Turner Ad Sales Starts Business Unit Turner Ignite,” Media Post Media Daily News, 4 Jan. 2016, <http://www.mediapost.com/publications/article/265851/turner-ad-sales-starts-business-unit-turner-ignite.html>; “Turner Takes Next Step to Re-Imagining Advertising with TURNER IGNITE”; “Turner Broadcasting Aligns With Epsilon, Krux And Oracle Power New Turner Data Cloud And Turner Premium Marketplace,” 30 June 2015, <http://www.krux.com/company/press-room/press-releases/turner-broadcasting-aligns-with-epsilon-krux-and-oracle-power-new-turner-data-cloud-and-turner-premium-marketplace/>; Jason

demographics” service to help its Targeting Now and AudienceNow “advanced advertising products ... optimize audience delivery to an advertiser’s specific marketing targets”²⁰⁶

Illustrating the convergence of data targeting with digital advertising formats that blur distinctions between editorial and marketing content, Turner announced it will become “a giant native ad platform.” Its new “Native Plus” service is being run “within Turner’s new Ignite division that will focus on both content and data solutions.” A Turner official notes that “we don’t see data and content as separate entities.”²⁰⁷ As Stephano Kim, Turner Broadcasting’s chief data strategist, explained,

We are joining forces with industry-leading data and technology companies to power the Turner Premium Marketplace powered by an unrivaled central repository of data. Fueling multi-screen ecosystems, Turner Premium Marketplace will enable our sales divisions to take their client conversations to a new level of insight and strategy to more effectively execute advertising campaigns across Turner’s portfolio. Brands advertising on Turner properties now have the enhanced ability to reach the most appropriate and desirable audiences across all user experiences wrapped in our premium content.²⁰⁸

Advertisers and agencies can access Turner’s Premium Marketplace either directly or programmatically.²⁰⁹

Lynch, “Turner Shakes Up Its Ad Sales Division to Streamline Agency and Client Partnerships,” *Adweek*, 8 Dec. 2015, <http://www.adweek.com/news/television/turner-shakes-its-ad-sales-division-streamline-agency-and-client-partnerships-168487>.

²⁰⁶ “Turner Broadcasting to Utilize Rentrak Advanced Demographics Ratings to Fuel Ad Targeting Products on Select Media Buys,” PR Newswire, 30 Sept. 2015, <http://www.prnewswire.com/news-releases/turner-broadcasting-to-utilize-renttrak-advanced-demographics-ratings-to-fuel-ad-targeting-products-on-select-media-buys-300151284.html>. Turner supported Rentrak’s merger with comScore. Media Industry Demonstrates Broad Support for the Announcement of a comScore and Rentrak Merger,” 8 Oct. 2015, <http://www.comscore.com/Insights/Press-Releases/2015/10/Media-Industry-Demonstrates-Broad-Support-for-the-Announcement-of-a-comScore-and-Rentrak-Merger>.

²⁰⁷ Jeanine Poggi, “Turner Seeks To Become One Big Native Ad Platform,” *Advertising Age*, 4 Jan. 2016, <http://adage.com/article/media/turner-seeks-big-native-ad-platform/301959/>.

²⁰⁸ “Turner Broadcasting Aligns with Epsilon, Krux And Oracle Power New Turner Data Cloud And Turner Premium Marketplace,” 30 June 2015, <http://www.krux.com/company/press-room/press-releases/turner-broadcasting-aligns-with-epsilon-krux-and-oracle-power-new-turner-data-cloud-and-turner-premium-marketplace/>.

²⁰⁹ Liyakasa, “Turner Broadcasting: TV Companies Can Have Data Clouds Too.” Last August, Turner expanded its commitment to video streaming, acquiring a majority stake in iStreamPlanet, “which the company hopes will boost its over-the-top and live-streamed video offerings. Although iStream will remain as a standalone company with its own board of directors, Turner Broadcasting CTO Jeremy Legg said the acquisition will help the broadcaster migrate its core video infrastructure to the cloud, enhance video-on-demand services and develop both ad-free and ad-supported over-the-top solutions.” Kelly Liyakasa, “Turner’s iStream Acquisition A Bid

For IP-Based Video,” AdExchanger, 17 Aug. 2015, <http://adexchanger.com/digital-tv/turners-istream-acquisition-a-bid-for-ip-based-video/>.

Viacom/CBS

“Big data and predictive analytics are reinventing TV advertising, bringing targeting and precision audience modeling from digital marketing to the world of linear and digital television. And with the emergence of these capabilities in premium context of television, an entire set of new business models—and new businesses—are triggering explosive innovation and growth. Viacom Vantage, Viacom’s data and analytics platform, is at the forefront of this change, and we are offering a select few individuals the opportunity to work with us to define the next generation of television advertising.”
—Viacom job posting²¹⁰

In April 2015, Viacom “announced Viacom Vantage, an innovative, data-driven ad product that enables advertisers to reach their custom targets at the program level across the Viacom Media Networks portfolio.” Vantage “invests in first-, second- and third-party data sets,” uses “predictive algorithms,” and utilizes the “data and matching capabilities” of Vantage to deliver targeted advertising on linear and digital Viacom content. “Viacom has added staffers to collect various streams of information—set-top box viewership, mobile-location information, consumer-purchase patterns and more—and then interpret them to help clients optimize their advertising buys,” reported one trade publication. Viacom’s “data team” provides its ad division with “a deep understanding of Viacom audience across digital, linear and social assets.” Vantage also involves a “granular understanding of a path analysis for individual viewers” across a range of content, taking advantage of “first- and third-party data sets so we can look across screens.” The company is able to track individuals across their online “journey” in order to assess the effectiveness of the targeted marketing.²¹¹

In November, Viacom announced a “strategic partnership” with TiVo Research designed to help “augment its precision and consumer targeting capabilities.” Viacom gained the ability to combine its “advanced predictive engine” with TiVo’s “granular set-top box data, matched directly to purchase and consumer engagement data”²¹² Viacom also

²¹⁰ Viacom, “Product Manager—Ad Innovations—Vantage,” Linked In, https://www.linkedin.com/jobs2/view/66796711?trk=jsrp_job_details_text.

²¹¹ Viacom discusses “custom segments” used for Vantage, which need to be disclosed along with the data used to identify, analyze, and target individuals. How such “deterministic” identification occurs should be made public. Kelly Liyakasa, “Viacom: TV Media 2.0 Will ‘Connect Viewing And Audience Data Deterministically,’” Ad Exchanger, 7 Aug. 2015, <http://adexchanger.com/ad-exchange-news/viacom-tv-media-2-0-will-connect-viewing-and-audience-data-deterministically/>; “Viacom Unveils ‘Viacom Vantage,’” 29 Apr. 2015, <http://news.viacom.com/press-release/ad-sales/viacom-unveils-viacom-vantage>.

²¹² “Viacom Unveils ‘Viacom Vantage.’” “TiVo Research has built the industry’s largest cross-media single-source panel, including second-by-second tune-in data anonymously matched to online exposure and purchase data for more than two million US homes. Viacom, which reaches a cumulative 3.4 billion television subscribers worldwide and 650 million social media followers, will unlock new capabilities for its marketing and advertising partners through an advanced application of its predictive engine to this sophisticated data set.” “Viacom and TiVo Research

“taps into browser data that examines consumers’ online shopping habits ...” Among the advertisers using this service are companies that target youth as well as communities of color.²¹³ Since 2015, Viacom’s Vantage has worked with Rentrak (now owned by comScore) to “precisely target consumer audiences” across devices and platforms, using a data-broker-based “advanced analytical technology.”²¹⁴ Viacom’s “Audience Science” division, which feeds Vantage, engages in “audience onboarding, advanced analytics and data activation.”²¹⁵

Viacom has been using a data-driven, programmatic, and cross-platform ad-targeting system for several years, including work with Adobe and the Rubicon Project.²¹⁶ Viacom’s cross-platform data targeting services also incorporate social media information, reflecting an “Always On” multi-platform strategy in which it “harnesses the power of its 220 million social followers to create and distribute real-time video and editorial content across on-air, online, mobile and social.” The “Viacom Social Echo Graph” is part of the recently developed Viacom Velocity services, which are focused on

Announce Strategic Partnership,” 2 Nov. 2015, <http://finance.yahoo.com/news/viacom-tivo-research-announce-strategic-130200252.html>.

²¹³ “After testing Viacom’s data technology with Mtn Dew in 2013, Pepsi intends to make fuller use of it next year, says Emily Silver, senior director of media and digital for PepsiCo. Americas Beverages. The goal, she explains, is to find the Viacom programs and networks that draw audiences most interested in beverages like Sierra Mist, and learn how to apply Viacom’s ad optimization to other platforms.” Brian Steinberg, “Viacom Bets on Big Data to Boost Its Revenues,” *Variety*, 3 Nov. 2015, <http://variety.com/2015/tv/news/viacom-big-data-measurement-1201631273/>.

²¹⁴ “Rentrak and Viacom Sign TV Ratings and Advanced Demographic Measurement Agreement,” 1 May 2015, <http://investor.rentrak.com/releasedetail.cfm?releaseid=910145>; “Media Industry Demonstrates Broad Support for the Announcement of a comScore and Rentrak Merger,” 8 Oct. 2015, <http://investor.rentrak.com/releasedetail.cfm?ReleaseID=935848>. “... Colleen Fahey Rush, executive VP of strategic insights and research for Viacom Media Networks, [said] in a statement. ‘Our partnership with Rentrak further strengthens our insights arsenal and our ability to unlock new levels of targeting.’” Jon Lafayette, “Viacom Makes Data Deal with Rentrak,” *Broadcasting & Cable*, 1 May 2015, <http://www.broadcastingcable.com/news/currency/viacom-makes-data-deal-rentrak/140459>.

²¹⁵ Kelly Liyakasa, “Viacom Snags Agency Vet Zilberbrand To Ramp Up Advanced Data Strategy,” *Ad Exchanger*, 2 Oct. 2015, <http://adexchanger.com/digital-tv/viacom-snags-agency-vet-zilberbrand-to-ramp-up-advanced-data-strategy/>.

²¹⁶ Jay Sears, “Robert Brett of Viacom Media Networks —The Jay Sears Interview,” *Media Village*, 13 Feb. 2014, <https://www.mediavillage.com/article/robert-brett-of-viacom-media-networks-the-jay-sears-interview/>; “Viacom International Media Launches Programmatic Ad Exchange with Rubicon Project,” *Portada*, 23 Sept. 2015, <http://www.portada-online.com/2013/09/23/viacom-international-media-launches-programmatic-ad-exchange-with-rubicon-project/>; “Viacom Introduces ‘Surround Sound’ Cross-Platform Audience Targeting for Advertisers,” 21 Mar. 2012, <http://ir.viacom.com/releasedetail.cfm?ReleaseID=658524>; “VIMN Launches Commercial Innovation Group to Help Brands Create Better Multiplatform Connections with Fans,” 19 May 2015, <http://www.vimn.com/press/content/vimn-launches-commercial-innovation-group-to-help-brands-create-better-multiplatform>.

branded content and other marketing integrations.²¹⁷ Viacom's Echo is a partnership with Spredfast, a social media monitoring company that helps clients "identify influencers for your brand, campaigns, and competitors" and "curate relevant social content across every major social network." Viacom is able to get ongoing data, via a dashboard, on how people in the U.S. are responding to its various "branded content campaigns" across such social media as Facebook, Google, Twitter, Amazon, Instagram, and others.²¹⁸ Viacom describes Viacom Velocity as a "full-service group offering insights-driven integrated marketing and creative content solutions from Viacom Media Networks Music and Entertainment ...".²¹⁹ According to Jeff Lucas, head of sales for Viacom Music and Entertainment, "Viacom Echo is a one-of-a-kind service that mirrors the way our content travels beyond our screens, across social media and throughout the pop culture. We want to take our clients and their brands with us on that journey."²²⁰

Viacom's current advanced-advertising initiatives are reflected in its work in "audience science," which covers the following activities:

- *Audience Onboarding & Segmentation* (Data Sourcing, Partnerships & Architecture)—Responsible for building the infrastructure architecture that allows Viacom to successfully ingest disparate data sets across linear, digital and off-line behavior and marry the data to actionable 360 executions and effectiveness measurements.
- *Advanced Analytics*—Works closely with the Audience Onboarding and Segmentation teams to draw insights and actionable models and methods to support both Sales and Marketing teams.

²¹⁷ Echo, according to Viacom, "is all about finding the shared voice of the client and working together to create a concept and make content and expressions for every platform with a cadence for what every platform does best." Natan Edelsburg, "Upfronts: How Viacom Velocity is Working with Spredfast to Sell Social TV," *The Drum*, 22 Apr. 2015, <http://www.thedrum.com/news/2015/04/22/upfronts-how-viacom-velocity-working-spredfast-sell-social-tv>.

²¹⁸ Spredfast, "Intelligence," <https://www.spredfast.com/social-media-marketing/spredfast-intelligence>; Spredfast, "Experiences," <https://www.spredfast.com/social-media-marketing/spredfast-experiences> Edelsburg, "Upfronts: How Viacom Velocity is Working with Spredfast to Sell Social TV"; "Viacom and Mass Relevance Partner to Launch EchoGraph, Exclusive Social Media Measurement Platform for Advertisers," 10 Apr. 2014, <http://ir.viacom.com/releasedetail.cfm?ReleaseID=839552>; Spredfast, "Social Network Partnerships," <https://www.spredfast.com/social-media-marketing/partner-program>.

²¹⁹ "Viacom Velocity introduced the Viacom Echo Social Media Network, a new service [through which] the company ... develop[s] creative campaigns for clients on the company's platforms and engineers their extension across social media and measurable earned media." "Viacom Introduces Unit to Help Advertisers Blend Pitches with Programming," 22 Jan. 2014, <http://ir.viacom.com/releasedetail.cfm?ReleaseID=820527>.

²²⁰ "Viacom Introduces Unit to Help Advertisers Blend Pitches with Programming."

- *Digital Media Executions*—Harnesses our 1st party and outside data sources and leverages them to target and message across all forms of digital – display, video, social and cross-device.²²¹

Viacom’s CBS division is also engaged in “data-driven” advertising, including working with programmatic marketers as well as having its own data management platform. It streams video content, including to mobile devices, using data to bolster ad revenue by creating “persistent viewer profiles.”²²² CBS Interactive is also a member of Google Partner Select, “a premium video marketplace that brings together the best of brand advertising with the best of programmatic.” CBS works with Google’s DoubleClick advertising system, which has access to significant data-targeting resources.²²³

²²¹ “Viacom Continues to Expand Commitment to Data Strategy with Latest Highly Regarded Hire, Julian Zilberbrand,” 2 Oct. 2015, <http://www.businesswire.com/news/home/20151002005380/en/Viacom-Continues-Expand-Commitment-Data-Strategy-Latest#.Vhn1Ddb6lFK>.

²²² Kelly Liyakasa, “CBS Television Distribution Finds Power In Cross-Platform Video,” Ad Exchanger, 17 Dec. 2015, <http://adexchanger.com/tv-and-video/cbs-television-distribution-finds-power-in-cross-platform-video/>; Cynthia Littleton, “Leslie Moonves Talks Apple TV, Ad-Free Version of CBS All Access,” *Variety*, 8 Dec. 2015, <http://variety.com/2015/digital/news/leslie-moonves-cbs-all-access-stephen-colbert-1201656577/>; Kelly Liyakasa, “How CBS Strategizes Cross-Screen Video,” Ad Exchanger, 13 Mar. 2015, <http://adexchanger.com/digital-tv/how-cbs-strategizes-cross-screen-video/>; Robert Andrews, “CBS All Access Subscribers Younger, Better Targeted: Debevoise,” Beet.TV, 7 Jan. 2015, <http://www.beet.tv/2015/01/cescbsdebevoise.html>.

²²³ Mike Shields, “Google Nabs Media Partners Including CBS Interactive and Fox News for Premium Video Exchange,” Wall Street Journal CMO Today, 6 Jan. 2015, <http://blogs.wsj.com/cmo/2015/01/06/google-nabs-media-partners-including-cbs-and-fox-news-for-premium-video-exchange/>; Neal Mohan, “Video and the Moments That Matter,” DoubleClick Advertisers Blog, 6 Jan. 2015, <http://doubleclickadvertisers.blogspot.com/2015/01/video-and-moments-that-matter.html>; Neal Mohan, “Unlocking the Brand Opportunity,” DoubleClick Advertisers Blog, 4 June 2014, <http://doubleclickadvertisers.blogspot.com/2014/06/unlocking-brand-opportunity.html>. In 2015, CBS launched its data-driven “Campaign Performance Audit, an approach that uses performance-based metrics to help advertisers maximize their television spending and improve return on investment. Nielsen assets being employed as part of CPA include Nielsen Catalina Solutions, Nielsen Buyer Insights, Nielsen MotorStats, Nielsen MRI Fusion, Nielsen Brand Effects and Nielsen Cambridge Media Demand Landscape.” Jon Lafayette, “CBS Jumps into Data with New Ad Product,” *Broadcasting & Cable*, 17 Mar. 2015, <http://www.broadcastingcable.com/news/currency/cbs-jumps-data-new-ad-product/138866>.

Google

“Data-driven targeting will leverage advertisers’, broadcasters’ and distributors’ growing investments in data by applying it to all media campaigns across all screens, including traditional TV.”
—Rany Ng, product management director, Google²²⁴

Google is in the forefront of using programmatic and other data-driven advertising across platforms, including digital video. Building on its own unique set of data assets and capabilities, including its DoubleClick Exchange service and expertise in effective marketing formats, Google illustrates how the role of data and our use of digital devices is fundamentally transforming our viewing across screens.

Through its ongoing Think with Google series, “Evolution of TV,” the digital marketing company has offered both its own vision for our video future as well as a practical guide for marketers who wish to take advantage of many new ways to target viewers. Google explains that “The Shift to TV over the internet is having a profound impact on television delivery, advertising and the viewer experience,” which is being driven by “the transformation of seven dynamics” in the “TV industry and advertising marketplace.”²²⁵ These seven dynamics are “reaching across screens,” Internet TV streaming, cloud-based TV distribution, measurement, programmatic ad technology, addressable advertising, and viewer engagement. Google has a major stake in this transformation, given its ownership of the world’s largest video platform (YouTube, with 1 billion unique users each month); its own video-streaming device (Chromecast), and especially its extensive data-driven advertising portfolio (including video ads). As it says in one of its reports, “advertisers follow their audiences, so ads will continue to be a primary source of revenue from programming delivered over the internet Through advances in video ad decisioning and dynamic ad insertion, campaigns can deliver the right message to the right user at the right time.”²²⁶

“Ad monetization technology” (such as dynamic ad insertion, or DAI) is one of the keys to ensuring that multi-platform video is successful, explains Google: “ad monetization platforms will be able to dynamically select the best ad for each viewer and seamlessly insert them” Cloud based services for “TV scale on the internet” enable the placement of “uniquely addressed” ads, regardless of whether they are distributed by content owners, “syndication partners, apps, sites ... [or] devices.” In its “TV’s Migration to the Cloud” study, Google notes that “With TV programming in the cloud, marketers

²²⁴ Rany Ng, Programmatic TV: A Monumental Upgrade For Advertisers,” Ad Exchanger, 26 May 2015, <http://adexchanger.com/ad-exchange-news/programmatic-tv-a-monumental-upgrade-for-advertisers/>.

²²⁵ Greg Philpott and Anish Kattukaran, “Evolution of TV: 7 Dynamics Transforming TV,” Think with Google, Dec. 2014, https://think.storage.googleapis.com/docs/evolution-of-tv-7-dynamics-transforming-tv_articles.pdf.

²²⁶ Philpott and Kattukaran, “Evolution of TV: 7 Dynamics Transforming TV.”

would be able to customize an ad specific to an individual”²²⁷ The ad creation and delivery process is facilitated by the use of programmatic data-targeted advertising to “uniquely address audiences across devices so that every impression matters.”²²⁸ Google defines programmatic TV as a “technology-automated and data-driven method of buying and delivering ads against TV content. This includes digital TV ads served across the web, mobile devices, and connected TVs, as well as linear TV ads served across set-top boxes.”²²⁹ “Data-driven targeting” plays a central role, as Google explains:

Data is one of the fundamental components of programmatic and this is true for TV as it is for digital. The promise of programmatic TV, as it pertains to data, is to achieve parity with and then move beyond the age, gender, reach, and frequency components of targeting Not only do first-, second-, and third party data sets segment audiences more precisely, they also help advertisers and programmers fine-tune the delivery ... even as users switch between screens.²³⁰

Having access to all this data also enables marketers to alter their use of data and content through “real-time optimization” (illustrating the growing scrutiny over our interactions online). Expanded data gathering and profiling also facilitates the impact of dynamic ad insertion (DAI). Google explains that “Not only does DAI technology have the potential to address the complexity of cross-screen, cross-device ad delivery, it can also increase the value of each ad spot since it allows each individual viewer to get his or her own unique and highly relevant stream of ads.”²³¹

Google provides a number of programmatic data-targeting services for video. It offers a “Google Partner Select Programmatic Premium Marketplace,” for example, that connects “a select set of publishers investing in top-quality video with the brands that want to buy against it.” Its TrueView video ads for YouTube are sold programmatically. It also offers programmatic targeting for so-called “native advertising” formats (where advertising assumes the features of informational content to obscure its intent) “across multiple kinds of screens.” Google enables broadcasters (via its mDialog technology) to identify targeted advertising opportunities on the Internet to coincide with their programming

²²⁷ Greg Philpott and Anish Kattukaran, “The Evolution of TV: TV’s Migration to the Cloud,” Think with Google, Apr. 2015, p. 5, <https://think.storage.googleapis.com/docs/evolution-of-tv-migration-to-the-cloud.pdf>.

²²⁸ Philpott and Kattukaran, “Evolution of TV: 7 Dynamics Transforming TV.”

²²⁹ Rany Ng and Anish Kattukaran, “The Evolution of TV: The Promise of Programmatic TV,” Think with Google, Mar. 2015, <https://think.storage.googleapis.com/docs/evolution-of-tv-programmatic-tv.pdf>.

²³⁰ Ng and Kattukaran, “The Evolution of TV: The Promise of Programmatic TV.”

²³¹ Greg Philpott and Anish Kattukaran, “Evolution of TV: Reaching Audiences Across Screens,” Think with Google, Feb. 2015, <https://think.storage.googleapis.com/docs/evolution-of-tv-reaching-audiences-across-screens.pdf>.

schedules.²³² In January it announced the availability of “real-time ads” so advertisers can capitalize on live events (such as sports, politics, and awards shows). “The format can be ‘dynamically inserted’ across YouTube, ‘hundreds of thousands of apps’ and about 2 million sites across the Google Display Network, according to Tara Walpert Levy, managing director of agency sales for Google. ... YouTube is productizing ways to ‘time’ mobile, video and display ads more sequentially with what’s happening on live TV.”²³³ Google is using data-targeted ads as part of its Google Fiber Internet and television service in Kansas City. “Google Fiber set-top boxes are IP based,” which allows for continuous monitoring and changes via the cloud—including for targeted marketing.²³⁴

²³² Neal Mohan, “Unlocking the Brand Opportunity,” DoubleClick Advertiser Blog, 4 June 2014, <http://doubleclickadvertisers.blogspot.com/2014/06/unlocking-brand-opportunity.html>; Kelly Liyakasa, “Google Switches On Programmatic For TrueView Video Ads,” Ad Exchanger, 16 Apr. 2015, <http://adexchanger.com/digital-tv/google-switches-on-programmatic-for-trueview-video-ads/>; Rany Ng, “Announcing New Ways for TV Providers to Manage Cross-screen, Addressable Digital Video Advertising,” DoubleClick Publisher Blog, 13 Apr. 2015, <http://doubleclickpublishers.blogspot.com/2015/04/new-ways-for-tv-providers-to-manage.html>.

²³³ Kelly Liyakasa, “Google Debuts ‘Real-Time Ads’ To Drive Live Engagement,” Ad Exchanger, 20 Jan. 2016, <http://adexchanger.com/ad-exchange-news/google-unveils-real-time-ads-drive-live-engagement/>.

²³⁴ Google, “Ads Settings for Fiber TV,” <https://support.google.com/fiber/answer/6093739?hl=en>; Google Fiber, “Fiber TV Trials Local Ads in Kansas City,” Google Fiber Help Forum, 20 Mar. 2015, https://productforums.google.com/forum/#!category-topic/fiber/tv/kansas_city/other/N4cyjy_B4bc; Philpott and Kattukaran, “The Evolution of TV: TV’s Migration to the Cloud.” As *Wired* magazine points out, “Google is about to make ads on television work just like ads on the web. Through Google, advertisers will know how many times their ads were viewed. They’ll be able to target audiences based on location and viewing history. In other words, TV advertisers will have access to the same audience intel online advertisers take for granted. Finally, after all this time, your TV is going to know as much about you as your web browser.” Klint Finley, “Thanks to Google, TV Ads Are About to Start Watching You,” *Wired*, <http://www.wired.com/2015/03/google-fiber-ads/>.